PJ 188350

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United States Patent and Trademark Office

January 10, 2000

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *60/140,240*
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PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)

By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

H. PHILLIPS

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 98,675-C)

In re Application of:		)	
	Dunaly and Boyce	)	Art Unit:
Serial No.:	To be Assigned	)	Examiner:
Filed:	Herewith	)	
For:	Data Management and Presentation Methods	)	

Asst. Commissioner for Patents
BOX PROVISIONAL APPLICATION
Washington, D.C. 20231

TRANSMITTAL LETTER

Sir:

1. We are transmitting herewith the attached papers for the above identified new provisional patent application:

   ☒ Patent Specification (161 pages, including cover sheet, claims, and abstract)
   ☒ Drawings (within specification)
   ☒ Return Postcard
   ☒ Other: Provisional Application Cover Sheet, Verified Statement claiming small entity status [3 Sheets]

2. ☒ A check in the amount of $75.00 is enclosed for the Filing Fee.

   ☐ Please charge the total filing fee of $75.00 to our Deposit Account No. 13-2490. A duplicate copy of this sheet is enclosed.

3. **GENERAL AUTHORIZATION TO CHARGE OR CREDIT FEES:** Please charge any additional fees or credit overpayment to Deposit Account No. **13-2490.** A duplicate copy of this sheet is enclosed.

4. **CERTIFICATE OF MAILING BY "EXPRESS MAIL" UNDER 37 CFR § 1.10:** The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1 hereinabove, are being deposited with the United States Postal Service with sufficient postage as "Express Mail Post Office to Addressee" in an envelope addressed to: Asst. Commissioner for Patents, Box Provisional Application, Washington, D.C. 20231, on this 21st of June, 1999. Express Mail No. EM004667713US

By: Stephen Lesavich

CHICAGO, ILLINOIS 60606
TELEPHONE 312 913-0001

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR §1.53(b)(2).

Docket No. 98,675-C	Type a plus sign (+) inside this box:	+

INVENTOR(S)/APPLICANTS(S)

LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (City and either state or foreign country)
Dunlay	Terry		Pittsburgh, PA
Boyce	Keith		Pittsburgh, PA

TITLE OF THE INVENTION (280 character maximum)

Data Management and Presentation Methods

CORRESPONDENCE ADDRESS

McDonnell Boehnen Hulbert & Berghoff
300 South Wacker Drive, Chicago

STATE	Illinois	ZIP CODE	60606	COUNTRY	U.S.A.

ENCLOSED APPLICATION PARTS (check all that apply)

☒ Specification Number of Pages 160 ☒ Small Entity Statement
☒ Drawing(s) Number of Sheets within specification ☐ Other (specify):

METHOD OF PAYMENT FOR THIS PROVISIONAL APPLICATION FOR PATENT

☒ A check or money order is enclosed to cover the Provisional Filing Fee. The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number: 13-2490.	PROVISIONAL APPLICATION FOR PATENT FILING FEE AMOUNT ($)	75.00

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.
__X__ No. _____ Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,
SIGNATURE: Stephen Lesavich Date: June 21, 1999

TYPED or PRINTED NAME Stephen Lesavich REG. NO. 43,749

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

CELLOMICS™

Data Viewer User's Guide

Drug Discovery Tools for the Era of the Cell

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Table of Contents

Introduction

Welcome to the Cellomics™ Data Viewer software application. The Cellomics™ Data Viewer is designed to help you review, analyze, and prepare reports of the data that you collected with your ArrayScan™ II system. Using powerful data analysis, visualization, and graphing tools, the Cellomics™ Data Viewer:

- Assists you in validating the data on different levels,
- Gives you the ability to annotate stored data, and
- Acts as a discovery tool by allowing you to examine data from one or many plates at the plate, well, and sub-well levels.

About this Guide

The chapters that follow this introduction are:

Chapter 1 provides an overview of the Cellomics™ Data Viewer. It includes information about the application interface and starting and exiting the application.

Chapter 2 outlines several quick tours of the Cellomics™ Data Viewer. The quick tours describe the basics of using the application.

Chapter 3 describes the Well Detail Window in the Cellomics™ Data Viewer. This window allows you to review the well data collected for a plate. This chapter explains the options available to you in this window.

Chapter 4 describes the Multi-Feature Window in the Cellomics™ Data Viewer. This window helps you compare multiple features measured for a plate at the well level. The three views and the options available to you in this window are explained.

Chapter 5 describes the Multi-Plate Window in the Cellomics™ Data Viewer. This window helps you compare a single feature across several plates. This chapter explains the three views and the options available to you in this window.

Chapter 6 explains the Cell Detail Window of the Cellomics™ Data Viewer. This window allows you to look at the data on a cell level. The chapter describes options available in this window.

Chapter 7 describes the Field Detail Window of the Cellomics™ Data Viewer. This window allows you to look at the data on a field level. The options available in this window are described.

Chapter 8 explains how to change your password and use user options, thus saving time during later review sessions.

Chapter 9 explains the Cellomics™ Data Viewer plate management functions. This includes importing, exporting, and deleting plates, changing the plate name and status, and using attachments with the plate.

Chapter 10 explains how to generate and analyze reports in the Cellomics™ Data Viewer.

Conventions

This manual assumes that you have a basic knowledge of computers using the Windows® operating environment and that you are familiar with windows, menus, commands, buttons, tabs, dialog boxes, and other Windows® elements. If you are unfamiliar with these terms, please refer to the Microsoft® Windows® documentation.

Throughout this manual, certain terminology and conventions are used consistently. These conventions are described below.

Terminology

Term	Definition
Click	This term means to place the mouse pointer over the item, then depress and release the primary mouse button (usually the left button) in one quick motion.
Right-click	This term means to place the mouse pointer over the item, then depress and release the secondary mouse button (usually the right button) in one quick motion.
Double-click	This term means to place the mouse pointer over the item, then depress and release the primary mouse button twice in quick succession.
Drag	This term means to place the mouse pointer over the item, depress and hold down the left mouse button, move the pointer (and the object) to some target location, then release the mouse button.
Press	This term is used when referring to keys on the keyboard. For example, press the Tab key.
Shift Ctrl Alt	When any of these terms are placed before any of the above terms, it means to hold down the specified keyboard key while taking the hyphenated action. Thus, Shift-click means to hold down the Shift key while clicking an item.
Shortcut menu	This is a menu that appears when you right-click an item.

Manual Conventions

- Menu names, menu items, and options are printed in bold type. For example: From the **File** menu, select **Find Plates**.
- Window titles, dialog box names, menu names, and option names begin with uppercase letters. For example: "The Find Plates dialog box is displayed."
- A section containing frequently asked questions on related chapter topics appears at the end of each chapter.

Contacting Cellomics™ Technical Support

If you have a technical question that you are unable to answer after consulting the documentation, please contact Cellomics™ technical support via e-mail at support@cellomics.com or contact your Cellomics™ account manager. Before you contact us, it is helpful if you are prepared to answer the following questions:

- What were you doing when the problem occurred?
- Can you reproduce the problem?
- Did you try to solve the problem?
- What was the exact wording of any software error messages that appeared on your screen?

Having these answers will help us provide you with a solution as quickly as possible.

Chapter 1

Using the Cellomics™ Data Viewer

The Cellomics™ Data Viewer allows you to view and analyze the data that you collected with your ArrayScan™ II system. Using extensive analysis, graphing, and reporting tools, Cellomics™ Data Viewer can help you:

- Analyze the data collected for a plate using the ArrayScan™ II system,
- Compare multiple features measured for a plate during a scan, and
- Compare a single measured feature across several plates.

This chapter introduces the Cellomics™ Data Viewer, including the interface and the procedures for starting and exiting the application.

Starting the Cellomics™ Data Viewer

Starting the Cellomics™ Data Viewer from the Desktop

To start the Cellomics™ Data Viewer application,

Do one of the following:

1) Double click the Cellomics™ Data Viewer icon on the desktop.
   -or-
   From the **Windows® Start** menu, select **Programs**. Choose the **CellApps** folder, then the **ArrayScan 2.0** folder, then **Cellomics Data Viewer**.

The Cellomics™ Data Viewer log in screen appears.

2) Enter your user name and password, then click the **OK** button.

The Cellomics™ Data Viewer Main Window opens.

Note: You can also open the Cellomics™ Data Viewer from ArrayScan™. When you open the Cellomics™ Data Viewer from ArrayScan™, the Well Detail Window is displayed. From this window, you can drill down and view the cell and field details of the plate.

Overview of the Cellomics™ Data Viewer

The Cellomics™ Data Viewer is designed to allow you to use several main windows. Each window gives you different analysis options. The Cellomics™ Data Viewer windows include:

- Viewer Main Window
- Well Detail Window
- Multi-Feature Window
- Multi-Plate Window
- Cell Detail Window
- Field Detail Window

Each of these main windows is explained briefly in this chapter, with details following in later chapters.

Viewer Main Window

The Viewer Main Window, shown and labeled in the figure below, is your starting point in the Cellomics™ Data Viewer. This window remains open when the Cellomics™ Data Viewer application is open.

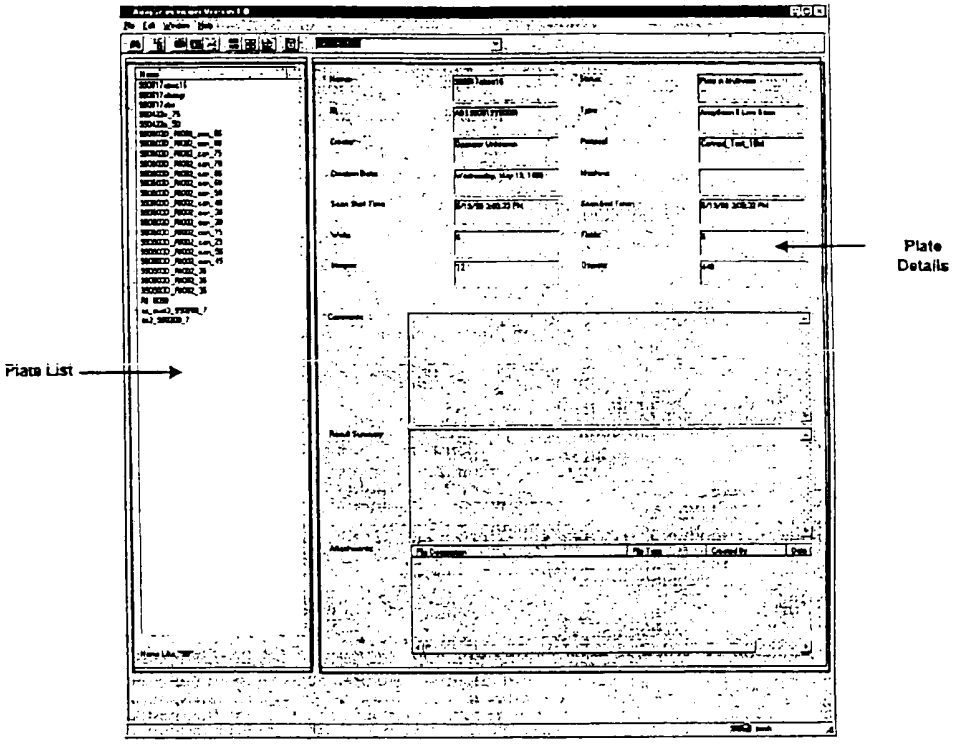

Figure 1.1 Each section of the Viewer Main Window is labeled in this figure.

Viewer Main Window Sections

A brief description of each section of the Viewer Main Window follows.

Section	Description
Plate List	Provides a list of the plates scanned within the past two days. For more information on finding older plates, see **Quick Tour 1 – Finding Plates** in Chapter 2 of this manual.
Plate Details	Clicking on one of the plates in the plate list fills in the plate details on the right side of the window. The plate details include information saved during the scan, as well as information annotated to the plate using the Cellomics™ Data Viewer.

Viewer Main Window Toolbar

The toolbar located across the top of the Viewer Main Window is shown below.

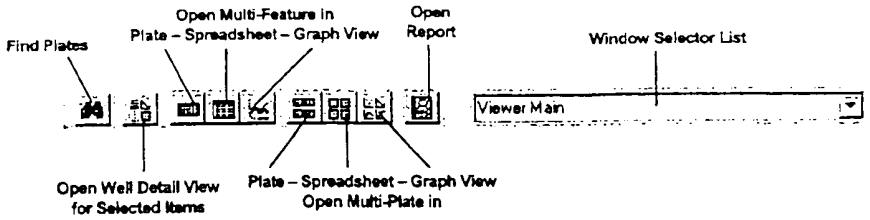

Figure 1.2 The Viewer Main Window toolbar provides access to many frequently used commands.

The Viewer Main Window toolbar contains the following items:

1) Toolbar buttons
Each option is also available from the **File** menu and the shortcut menu that appears when you right-click on the plate list.

Toolbar Button Name	What it Does
Find Plates	Displays the Find Plates dialog box, which can help you search for plates.
Open Well Detail View for Selected Items	Displays each of the selected plate(s) in a Well Detail Window. Display this window when you want to view the data for the plate in several ways.
Open Multi-Feature in Plate View	Displays the Multi-Feature Window with the Plate View open. Display this window when you want to compare several features for one plate using color-coded plate representations.
Open Multi-Feature in Spreadsheet View	Displays the Multi-Feature Window with the Spreadsheet View open. Display this window when you want to compare several features for one plate using the actual measured values.
Open Multi-Feature in Graph View	Displays the Multi-Feature Window with the Graph View open. Display this window when you want to compare several features for one plate using graphs.
Open Multi-Plate in Plate View	Displays the Multi-Plate Window with the Plate View open. Display this window when you want to compare a single feature across several plates using color-coded plate representations.
Open Multi-Plate in Spreadsheet View	Displays the Multi-Plate Window with the Spreadsheet View open. Display this window when you want to compare a single feature across several plates using the actual measured values.
Open Multi-Plate in Graph View	Displays the Multi-Plate Window with the Graph View open. Display this window when you want to compare a single feature across several plates using graphs.
Open Report	Displays the Reports Window, which allows you to generate reports of the data.

2) Window Selector List
The Window Selector List contains a listing of windows that are currently open. You can use it to navigate quickly from one window to another.

Well Detail Window

The Well Detail Window, shown in the figure below, allows you to view the data gathered for each well in the plate in three ways:

- Visually in a color-coded plate representation,
- Plotted in a graph, and
- By actual values in a spreadsheet, with the rows and columns of the spreadsheet corresponding to the rows and columns of the plate.

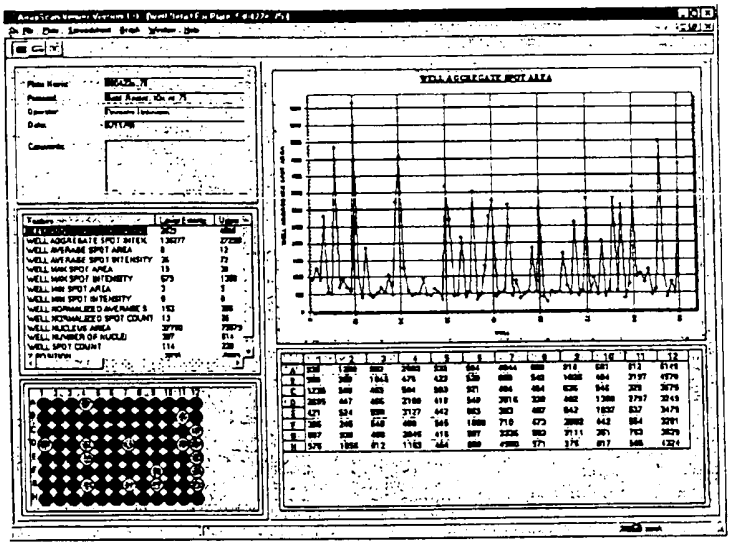

Figure 1.3 The Well Detail Window (96-well format).

More details on this window can be found in Chapter 3, **Reviewing the Well Details of a Plate**.

Multi-Feature Window

The Multi-Feature Window, shown in the figure below, allows you to compare several features for one plate.

Once in the Multi-Feature Window, you can easily switch between viewing the data in the Plate View, the Spreadsheet View, or the Graph View.

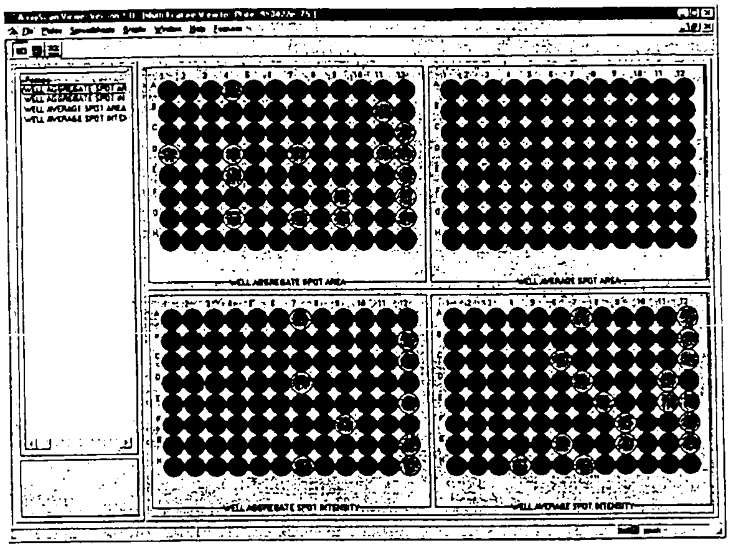

Figure 1.4 The Multi-Feature Window shown in the Plate View (96-well format).

For more information on this window, see Chapter 4, **Reviewing Multiple Features of a Plate**.

Multi-Plate Window

The Multi-Plate Window, shown in the figure below, allows you to compare a feature across several plates.

Once in the Multi-Plate Window, you can easily switch between viewing the data in the Plate View, the Spreadsheet View, or the Graph View.

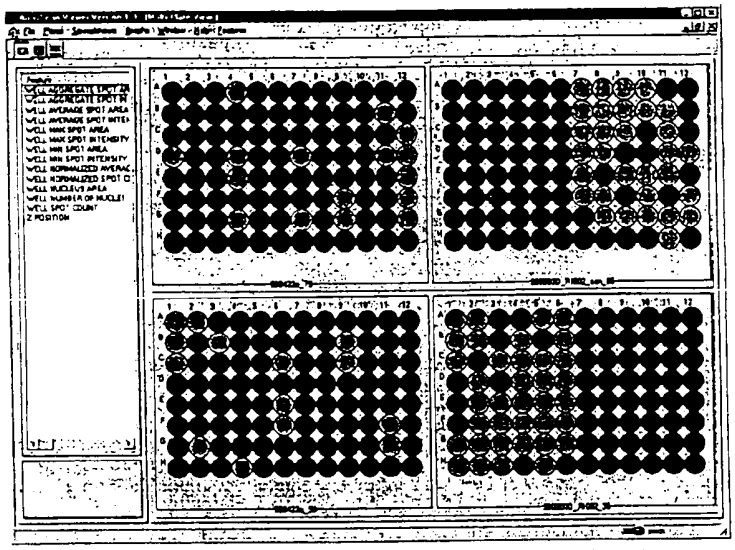

Figure 1.5 The Multi-Plate Window shown in the Plate View (96-well format).

For more information on this window, see Chapter 5, **Reviewing a Feature Across Several Plates**.

Cell Detail Window

The Cell Detail Window allows you to interact with the cell data that was used to calculate the well features. It is shown in the figure below.

The Cell Detail Window can be displayed from the Well Detail Window, the Multi-Feature Window, or the Multi-Plate Window.

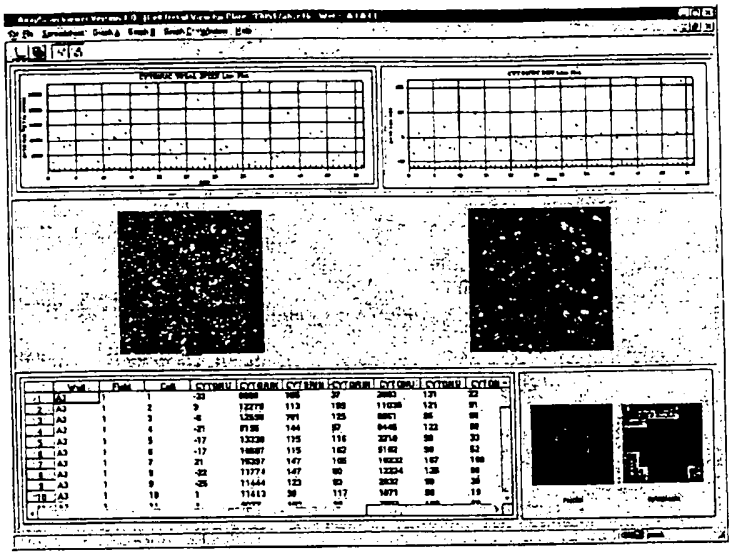

Figure 1.6 The Cell Detail Window.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

More details on this window can be found in Chapter 6, **Viewing the Cell Details**.

Field Detail Window

The Field Detail Window, shown in the figure below, allows you to interact with the field data that was used to calculate the well features.

The Field Detail Window can be displayed from the Well Detail Window, the Multi-Feature Window, or the Multi-Plate Window.

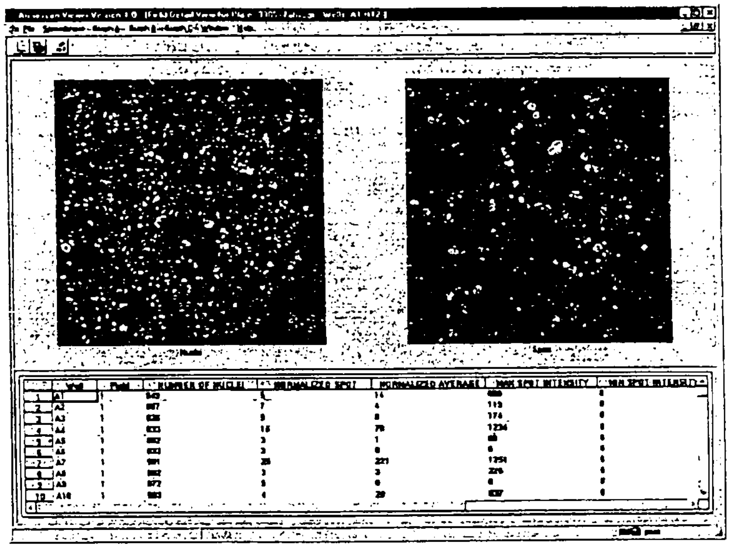

Figure 1.7 The Field Detail Window.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

More details on this window can be found in Chapter 7, **Viewing the Field Details.**

Cellomics™ Data Viewer Status Bar

The Cellomics™ Data Viewer status bar is located across the bottom of the Viewer Main Window.

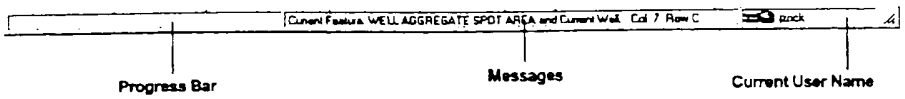

Figure 1.8 The Cellomics™ Data Viewer status bar.

The status bar displays the following items:

- **Progress Bar** This area displays the percentage of work completed for actions that take an extended period of time.
- **Messages** This area displays a detailed description of any program messages. A description of the action that is occurring, the name of the current feature, and the row and column location of the current well are examples of items that may appear here.
- **Current User Name** This area displays the name of the currently logged in user.

Tooltips

If you are not sure of the meanings of some of the Cellomics™ Data Viewer toolbar buttons and other features, place your cursor over the button or option in question and hold it there for a couple of seconds. A tooltip will appear displaying the button name or describing the feature.

Exiting the Cellomics™ Data Viewer

To exit the Cellomics™ Data Viewer,

- From the **File** menu in any window, select **Exit**.
  -or-
  Right-click on the plate list in Viewer Main Window, then choose **Exit** from the shortcut menu.

Note: You should also exit the Watchdog utility before you can shut off your computer system. See **Exiting the Watchdog Utility** in Appendix A, **Working with the Watchdog Utility**.

FREQUENTLY ASKED QUESTIONS

What options do I have for reviewing data in the Cellomics™ Data Viewer?
The Cellomics™ Data Viewer allows you to review the results summarized by well in three ways:
1) by viewing the complete results of a plate using the Well Detail Window,
2) by comparing the features of a plate using the Multi-Feature Window, and
3) by comparing a single feature across multiple plates using the Multi-Plate Window.

In addition, the Cellomics™ Data Viewer allows you to drill down to display:
1) the results on a cell level using the Cell Detail Window (where applicable) and
2) the results on a field level using the Field Detail Window.

I am familiar with ArrayScan™ 1.0. How does ArrayScan™ 2.0 compare?
The results presented in the Well Detail Window are similar to what you are used to seeing. The Cellomics™ Data Viewer shipped with the ArrayScan™ 2.0 application provides many more options.

Chapter 2

Cellomics™ Data Viewer Quick Tours

This chapter is designed to teach you the basics of using the Cellomics™ Data Viewer. It is divided into three Quick Tours:

- Quick Tour 1 – Finding Plates
- Quick Tour 2 – Reviewing the Data
- Quick Tour 3 – Managing the Windows

After completing the lessons in these Quick Tours, you will gain a solid understanding of the basic features and capabilities of the Cellomics™ Data Viewer.

Quick Tour 1 – Finding Plates

Quick Tour 1 teaches you how to locate plates in the database for viewing in the Cellomics™ Data Viewer.

Lesson 1 – Searching for Plates

In this lesson, you will learn how to:

- Open the Find Plates Dialog Box
- Enter Search Criteria
- Display the Plates Meeting that Criteria

Opening the Find Plates Dialog Box

To open the Find Plates dialog box,

Do one of the following:

- Click the Find icon on the toolbar of the Viewer Main Window.
  -or-
  From the **File** menu in the same window, select **Find Plates**.
  -or-
  Right-click on the plate list in the same window, then choose **Find Plates** from the shortcut menu.

The Find Plates dialog box appears.

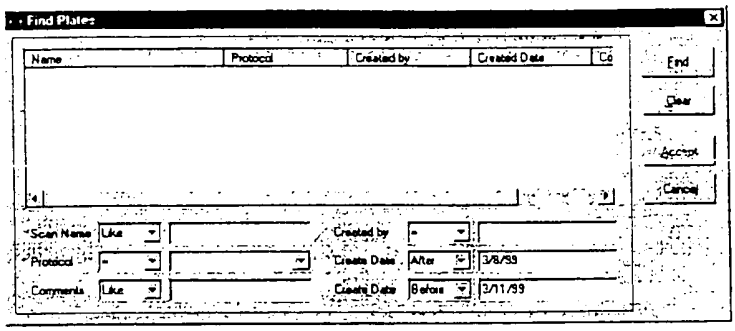

Figure 2.1 Find Plates dialog box.

Note: When you are using the Cellomics™ Store, the data should be first transferred to the Cellomics Store Server. This can take a few minutes.

Entering Search Criteria

The plate list in the Cellomics™ Data Viewer Main Window automatically shows the plates scanned in the past two days. Using the Find Plates dialog box, you can search for plates that are older than this or that meet certain criteria.

To enter search criteria,

- Enter a value in one or more of the following fields. Choose **Like** before a search criterion to find results similar to the value entered. Choose = before a search criterion to find results exactly as entered. A description of each criterion follows.

Criterion	Description
Scan Name	The name typed into the ArrayScan™ 2.0 Plate ID box.
Protocol	The protocol used to scan the plate.
Comments	The comments typed into the ArrayScan™ 2.0 Scan Comments box.
Created By	The name entered in the Operator box of the Stacker application.
Create Date	The date the plate was scanned. **If you want to find plates scanned on a certain date,** enter the date in one of the two Create Date boxes using the = sign before. **If you want to find plates scanned before or after a certain date,** enter the date in one of the two Create Date boxes using either the **Before** or **After** option before the date. **If you want to enter a date range,** enter the starting date in the first Create Date box using the **After** option before it and the ending date in the second Create Date box using the **Before** option before it. If you entered dates as shown in Figure 2.1 above, plates scanned on 3/9/99 and 3/10/99 would be found.

Note: The information that you enter as search criteria is not case-sensitive. In addition, you do not need to use a wildcard character (*) to search for partial input.

Displaying the Plates Meeting that Criteria

To display plates meeting your search criteria,

1) Click the **Find** button.

   A list of plates meeting the search criteria that you chose appears in the Results section of the Find Plates dialog box.

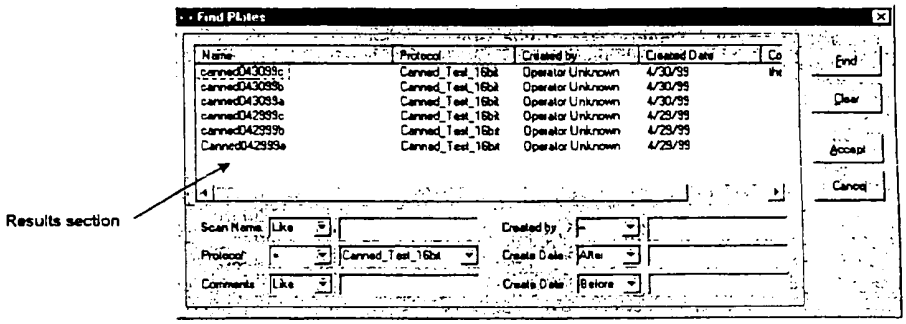

Figure 2.2 Find Plates dialog box showing results.

Note: Specifying no criteria and clicking the **Find** button displays a list of the plates in the database.

2) Click the **Accept** button if the plate(s) that you were searching for appear in the list. This transfers the plates to the plate list in the Viewer Main Window.

Note: If the plate(s) that you were searching for doesn't appear in the Results section, change one or more of the search criterion that you entered, then click the **Find** button again. Alternatively, click the **Clear** button to clear the dialog box to enter new criteria.

Quick Tour 2 – Reviewing the Data

Quick Tour 2 outlines the three ways of reviewing data on a well level in the Cellomics™ Data Viewer. In addition, you will learn how to drill down and display the results on a field and cell level.

Lesson 1 – Reviewing the Well Data of a Plate

- Opening the Well Detail Window
- Choosing the Feature Displayed

Lesson 2 – Comparing Multiple Features of a Plate

- Returning to the Viewer Main Window
- Opening the Multi-Feature Window
- Changing the View Displayed

Lesson 3 – Comparing a Feature Across Multiple Plates

- Returning to the Viewer Main Window
- Opening the Multi-Plate Window
- Changing the Feature Displayed
- Changing the View Displayed

Lesson 4 – Viewing the Cell Details

- Opening the Cell Detail Window

Lesson 5 – Viewing the Field Details

- Returning to the Multi-Plate Window
- Opening the Field Detail Window

Note: In this Quick Tour, you will be leaving the windows that you work with open so that you can use them in Quick Tour 3. Typically, when you are working with the Cellomics™ Data Viewer, you will want to close any windows that you no longer need to optimize the system performance.

Lesson 1 – Reviewing the Well Details of a Plate

This lesson introduces the Well Detail Window in the Cellomics™ Data Viewer. In this lesson, you will learn how to:

- Open the Well Detail Window
- Choose the Feature Displayed

For more detailed information on the Well Detail Window including additional options, please refer to Chapter 3, **Reviewing the Well Details of a Plate.**

Opening the Well Detail Window

The Well Detail Window of the Cellomics™ Data Viewer allows you to review the well details of a plate. Reviewing the plate using this method allows you to display the well data in three ways with one window: (1) visually in a color-coded plate representation, (2) plotted in a graph, and (3) by actual values in a spreadsheet.

To open the Well Detail Window, you need to start with the plate list in the Viewer Main Window.

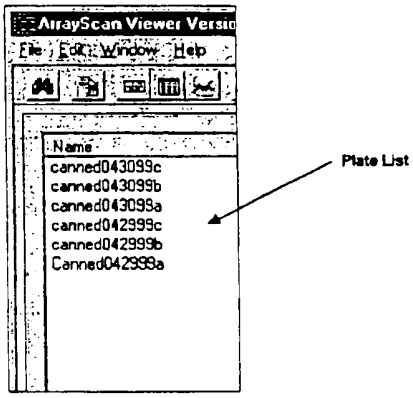

Figure 2.3 The plate list in the Cellomics™ Data Viewer Main Window.

To open the Well Detail Window,

1) Click on a plate in the plate list in the Viewer Main Window.
   Information about the plate is shown on the right side of the window automatically.

2) Select **Open Well Detail** from the **File** menu
   -or-
   Click the **Open Well Detail** button located on the toolbar.
   -or-
   Right-click on your selection, then choose **Open Well Detail** from the shortcut menu.

An example of the Well Detail Window is shown in the figure below.

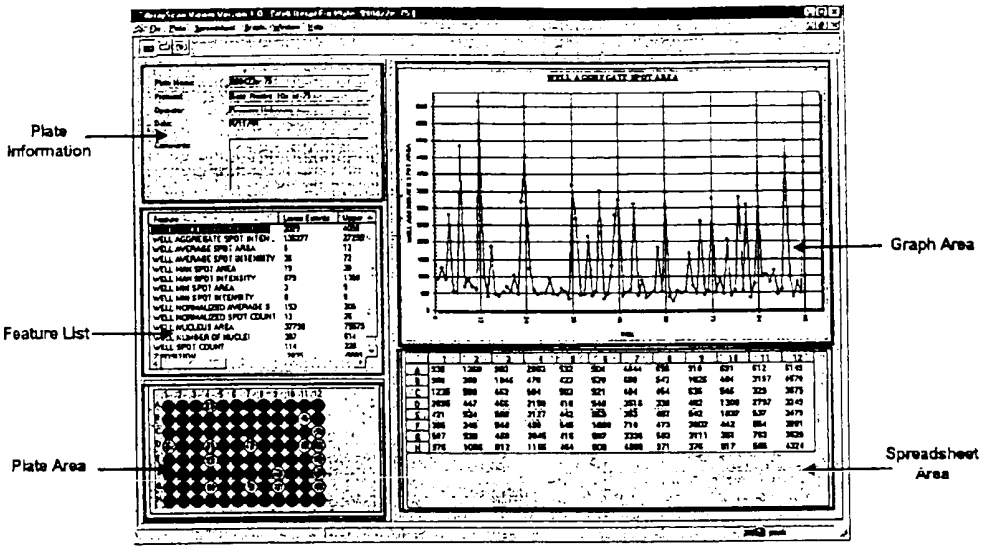

Figure 2.4 Each section of the Well Detail Window (96-well format) is labeled in this figure.

Choosing the Feature Displayed

The Well Detail Window opens displaying the data for the first feature in feature list.

To choose the feature displayed in the Well Detail Window,

- Double-click on the feature that you want to view.
  The plate representation, graph, and spreadsheet in the Well Detail Window are updated with the data for that feature automatically.

Lesson 2 – Comparing Multiple Features of a Plate

This lesson assumes that you are continuing from Lesson 1 in this Quick Tour. It introduces the Multi-Feature Window in the Cellomics™ Data Viewer. In this lesson, you will learn how to:

- Return to the Viewer Main Window
- Open the Multi-Feature Window
- Change the View Displayed

For more detailed information on the Multi-Feature Window including additional options, please refer to Chapter 4, **Reviewing Multiple Features of a Plate**.

Returning to the Viewer Main Window

The Multi-Feature Window of the Cellomics™ Data Viewer allows you to review the well data by comparing multiple features for one plate. To open the Multi-Feature Window, you need to return to the Viewer Main Window.

To return to the Viewer Main Window,

1) From the **Window** menu in the Well Detail Window, choose **Go to Window**.
   The sub-menu displays a list of the Cellomics™ Data Viewer windows that are open. In this case, since you are in the Well Detail Window, the option that says "Well Detail for Plate" has a checkmark next to it. The other window that you have worked with so far has been the Viewer Main Window, which is also listed.

2) Select **Viewer Main** from the sub-menu.

Opening the Multi-Feature Window

Once back at Viewer Main Window, you can open the Multi-Feature Window.

To open the Multi-Feature Window,

1) Click on a plate in the plate list in the Viewer Main Window.
   You can either click on the same plate you used to open the Well Detail Window or click on a different plate. When you click on a plate, information about that plate is shown on the right side of the window automatically.

2) Select **Open Multi-Feature in Plate View** from the **File** menu.
   -or-
   Click the **Open Multi-Feature in Plate View** button located on the toolbar.
   -or-
   Right-click on your selection, then choose **Open Multi-Feature in Plate View** from the shortcut menu.

The Select Features for Multi-Feature View dialog box, shown below, appears.

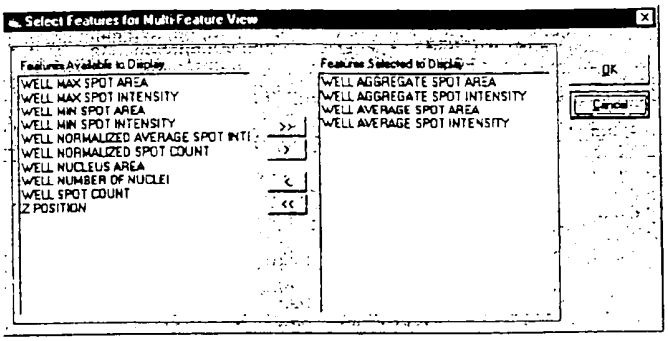

Figure 2.5 Select Features for Multi-Feature View dialog box.

3) Choose the features that you want to compare for the plate. You can compare a maximum of nine features at one time.

To add a feature to the display list: Click on the feature that you want to display in the Features Available to Display List, then click the **Add** button.

To display all of the features: Click in the Features Available to Display List, then click the **Add All** button.

To remove a feature from the display list: Click on the feature that you want to remove from the display in the Features Selected to Display List, then click the **Remove** button.

To remove all of the features: Click in the Features Selected to Display List, then click the **Remove All** button.

4) Click the **OK** button.

The Multi-Feature Window opens in The Plate View.

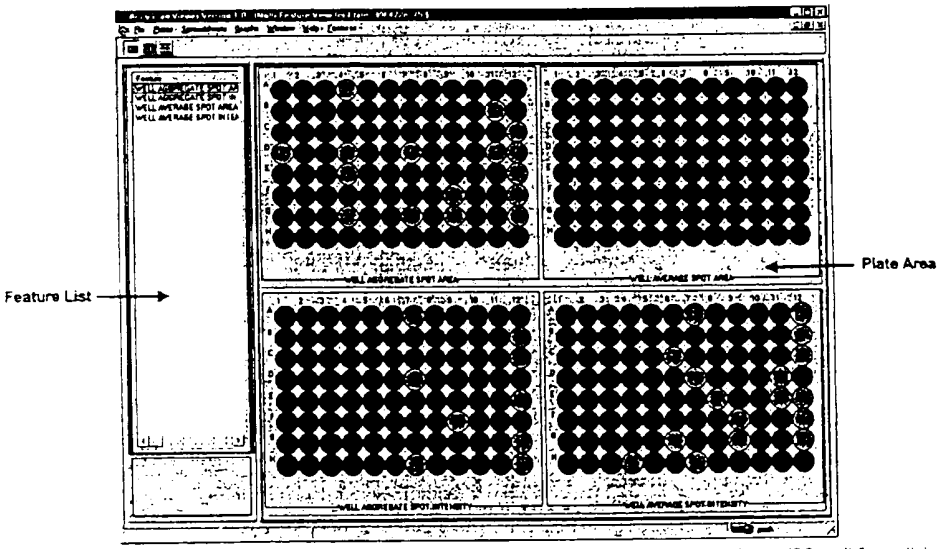

Figure 2.6 Each section of the Multi-Feature Window shown in the Plate View (96-well format) is labeled in this figure.

Changing the View Displayed

In this lesson, you opened the Multi-Feature Window in the Plate View. In The Plate View, you can see the results for the different features that you chose to compare shown visually in color-coded plate representations. For more information on the color-coding used, see Chapter 4, **Reviewing Multiple Features of a Plate**.

The Multi-Feature Window has two other views: the Spreadsheet View and the Graph View. While you could have opened the Multi-Feature Window directly in one of these other two views, you can easily switch to one of these views using the menus or the toolbar buttons in the Multi-Feature Window. These options are explained below.

Image	Toolbar Button Name	What It Does
	Plate View	Places the window in the Plate View. In the Plate View, the results are shown visually using color-coded plate representations. Clicking this toolbar button is equivalent to selecting **View Plates** on the **Plates** menu.
	Spreadsheet View	Places the window in the Spreadsheet View. In the Spreadsheet View, the results are shown using the actual measured values. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Clicking this toolbar button is equivalent to selecting **View Spreadsheets** on the **Spreadsheets** menu.
	Graph View	Places the window in the Graph View. In the Graph View, the results are shown using graphs. Clicking this toolbar button is equivalent to selecting **View Graphs** on the **Graphs** menu.

To change the view displayed in the Multi-Feature Window,

- Click the toolbar button corresponding to your choice of views.

  -or-

  Select **View Plates** from the **Plates** menu, **View Spreadsheets** from the **Spreadsheets** menu, or **View Graphs** from the **Graphs** menu.

Lesson 3 – Comparing a Feature Across Multiple Plates

This lesson assumes that you are continuing from Lesson 2 in this Quick Tour. It introduces the Multi-Plate Window in the Cellomics™ Data Viewer. In this lesson, you will learn how to:

- Return to the Viewer Main Window
- Open the Multi-Plate Window
- Change the Feature Displayed
- Change the View Displayed

For more detailed information on the Multi-Plate Window including additional options, please refer to Chapter 5, **Reviewing a Feature Across Several Plates**.

Returning to the Viewer Main Window

The Multi-Plate Window of the Cellomics™ Data Viewer allows you to review the well data by comparing a feature across multiple plates. To open the Multi-Plate Window, you need to return to the Viewer Main Window.

To return to the Viewer Main Window,

1) From the **Window** menu in the Multi-Plate Window, choose **Go to Window**.
   The sub-menu displays a list of the Cellomics™ Data Viewer windows that are open.
2) Select **Viewer Main** from the sub-menu.

Opening the Multi-Plate Window

Once back at the Viewer Main Window, you can open the Multi-Plate Window.

To open the Multi-Plate Window,

1) From the Viewer Main Window, select a maximum of nine plates that you want to compare.
   To select a group of continuous plates: Click on the first plate that you want to select. While holding down the Shift key, click on the last plate that you want to select. Release the Shift key. All of the plates in between these two plates will be selected.
   To select a group of non-continuous plates: Click on one of the plates that you want to select. While holding down the Ctrl key, click on the other plates that you want to select. Release the Ctrl key. All of the plates that you clicked on will be selected.

2) Select **Open Multi-Plate in Plate View** from the **File** menu.
   -or-
   Click the **Open Multi-Plate in Plate View** button located on the toolbar.
   -or-
   Right-click on one of the plates that you selected, then choose **Open Multi-Plate in Plate View** from the shortcut menu.

An example of the Multi-Plate Window is shown next.

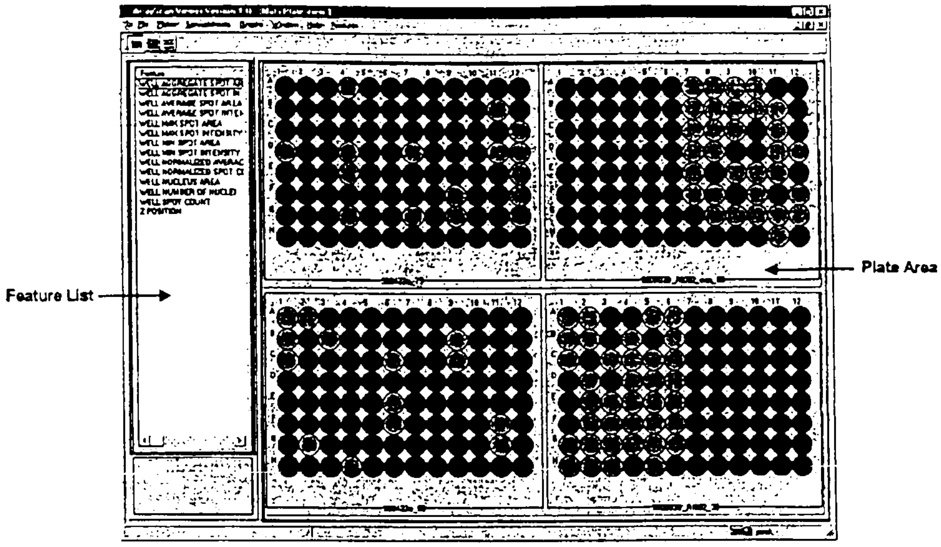

Figure 2.7 Each section of the Multi-Plate Window shown in the Plate View (96-well format) is labeled in this figure.

Choosing the Feature Displayed

The Multi-Plate Window opens displaying the data for the first feature in the feature list.

To choose the feature displayed in the Multi-Plate Window,

- Double-click on the feature that you want to view.
  The color-coded plate representations are updated automatically.

Changing the View Displayed

In this lesson, you opened the Multi-Plate Window in the Plate View. In the Plate View, you see the results for the plates that you chose to compare shown in color-coded plate representations.

The Multi-Plate Window has two other views: the Spreadsheet View and the Graph View. While you could have opened the Multi-Plate Window directly in one of these other two views, you can easily switch to one of these views using the menus or the toolbar buttons in the Multi-Plate Window. These options are explained below.

Image	Toolbar Button Name	What It Does
	Plate View	Places the window in the Plate View. In the Plate View, the results are shown visually using color-coded plate representations. Clicking this toolbar button is equivalent to selecting **View Plates** on the **Plates** menu.
	Spreadsheet View	Places the window in the Spreadsheet View. In the Spreadsheet View, the results are shown using the actual measured values. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Clicking this toolbar button is equivalent to selecting **View Spreadsheets** on the **Spreadsheets** menu.
	Graph View	Places the window in the Graph View. In the Graph View, the results are shown using graphs. Clicking this toolbar button is equivalent to selecting **View Graphs** on the **Graphs** menu.

To change the view displayed in the Multi-Feature Window,

- Click the toolbar button corresponding to your choice of views.

  -or-

  Select **View Plates** from the **Plates** menu, **View Spreadsheets** from the **Spreadsheets** menu, or **View Graphs** from the **Graphs** menu.

Lesson 4 – Viewing the Cell Details

This lesson assumes that you are continuing from Lesson 3 in this Quick Tour. It introduces the Cell Detail Window in the Cellomics™ Data Viewer. In this lesson, you will learn how to:

- Open the Cell Detail Window

For more detailed information on the Cell Detail Window including additional options, please refer to Chapter 6, **Viewing the Cell Details**.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

Opening the Cell Detail Window

The Cellomics™ Data Viewer allows you to drill down from the Well Detail Window, the Multi-Feature Window, or the Multi-Plate Window to display the detailed cell data in the Cell Detail Window.

To open the Cell Detail Window,

1) Click on a well in the plate representation in the Plate View, spreadsheet cell in the Spreadsheet View, or a data point in the Graph View.
   This allows you to view the cell details of this one well. If you wish, you can review the cell details of multiple wells by selecting them.

2) Right-click on your selection, then choose **Cell Details** from the shortcut menu.
   The Cell Detail Window opens as shown in the figure below.

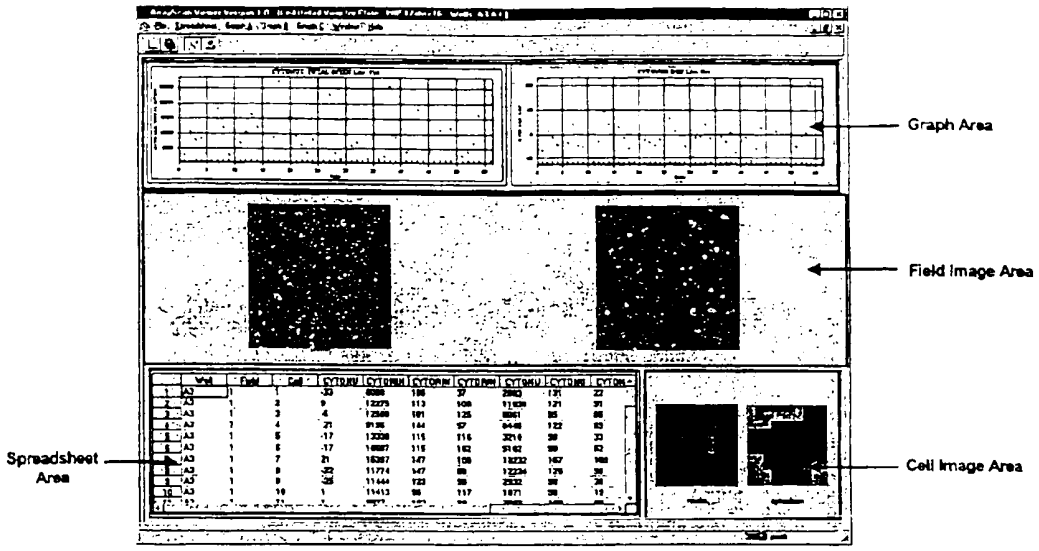

Figure 2.8 Each section of the Cell Detail Window is labeled in this figure.

Lesson 5 – Viewing the Field Details

This lesson assumes that you are continuing from Lesson 4 in this Quick Tour. It introduces the Field Detail Window in the Cellomics™ Data Viewer. In this lesson, you will learn how to:

- Return to the Multi-Plate Window
- Open the Field Detail Window

For more detailed information on the Field Detail Window including additional options, please refer to Chapter 7, **Viewing the Field Details**.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

Returning to the Multi-Plate Window

The Cellomics™ Data Viewer allows you to drill down from the Well Detail Window, the Multi-Feature Window, or the Multi-Plate Window to display the detailed field data in the Field Detail Window. To open the Field Detail Window, you need to return to the Multi-Plate Window that you have open.

To return to the Multi-Plate Window,

1) From the **Window** menu in the Cell Detail Window, choose **Go to Window**. The sub-menu displays a list of the Cellomics™ Data Viewer windows that are currently open.

2) Select **Multi-Plate View** from the sub-menu.

Opening the Field Detail Window

To open the Field Detail Window,

1) Click on a well in the plate representation in the Plate View, spreadsheet cell in the Spreadsheet View, or a data point in the Graph View.
This allows you to view the field details of this well. If you wish, you can review the field details of multiple wells by selecting them.

2) Right-click on your selection, then choose **Field Details** from the shortcut menu.
The Field Detail Window opens as shown in the figure below.

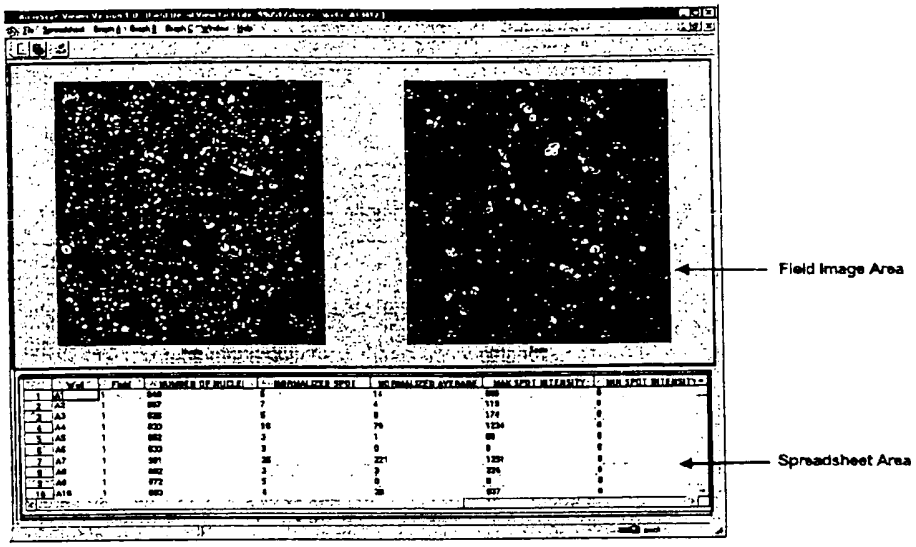

Figure 2.9 Each section of the Field Detail Window is labeled in this figure.

Quick Tour 3 – Managing the Cellomics™ Data Viewer Windows

Quick Tour 3 teaches you how to manage the open windows in the Cellomics™ Data Viewer.

Lesson 1 – Displaying a Windows
- Displaying the Windows Using the Window Menu
- Displaying the Windows Using the Window Selector List

Lesson 2 – Arranging the Windows
- Arranging the Windows Using the Window Menu

Lesson 3 – Closing a Window
- Closing a Window Using the File Menu

Lesson 1 – Displaying a Window

The Cellomics™ Data Viewer provides you with two quick ways to display different windows that you have open in the application. In this lesson, you will learn how to:

- Display Windows Using the Window Menu
- Display Windows Using the Window Selector List

Displaying Windows Using the Window Menu

To display a window using the Window menu,

1) From the **Window** menu in any Cellomics™ Data Viewer window, choose **Go to Window**.
2) Select the window that you want to display from the sub-menu.
   The sub-menu shows a list of the Cellomics™ Data Viewer windows that are open. The window that you are currently viewing has a checkmark in front of it.

Displaying Windows Using the Window Selector List

The toolbar in the Viewer Main Window is shown below.

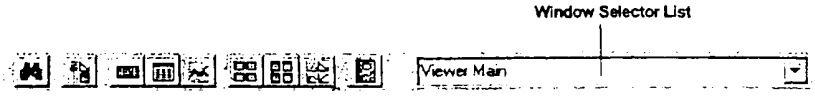

Figure 2.10 Window Selector List.

The Window Selector List on this toolbar lists the windows that are currently open.

To display a window using the Window Selector List,

1) If you are not currently in the Viewer Main Window, select it using **Go to Window** on the **Window** menu.
2) From the Window Selector List, choose the window that you want to display.

Lesson 2 – Arranging the Windows

When you are using the Cellomics™ Data Viewer, you may want to display multiple windows simultaneously. In this lesson, you will learn how to:

- Arrange the Windows Using the Window Menu

Arranging the Windows Using the Window Menu

The Cellomics™ Data Viewer allows you to arrange the windows in the four ways listed below.

Option	Description
Tile Horizontally	Arranges the open windows next to each other horizontally.
Tile Vertically	Arranges the open windows next to each other vertically.
Cascade	Arranges the open windows in a waterfall format.
Arrange Icons	Arranges the minimized windows along the bottom of the Viewer Main Window.

To arrange the windows in the Viewer Main Window,

- From the **Window** menu in any Cellomics™ Data Viewer window, select the option that you want to use to arrange the windows.

Lesson 3 – Closing a Window

In this lesson, you will learn how to:

- Close a Window Using the File Menu

Closing a Window Using the File Menu

When you no longer need to use a window in the Cellomics™ Data Viewer, you can close it.

To close a window,

1) Display the window that you want to close.

2) From the **File** menu, select **Close**.

FREQUENTLY ASKED QUESTIONS

I scanned a plate. Why is it not listed in the plate list in the Viewer Main Window?
When you start the Cellomics™ Data Viewer, the plate list contains the plates scanned in the past two days. This is done because the plate list could potentially show a very large number of plates.

How do I find a plate that isn't listed in the plate list?
You should use the built-in Find Plates tool. For more information, refer to **Quick Tour 1 – Finding Plates** in this chapter.

How can I compare multiple features measured for a plate?
To compare multiple features of a plate, you should review the data using the Multi-Feature Window. This window allows you to review the results in three views:
1) Plate View – in color-coded plate representations showing the status of the wells
2) Spreadsheet View – in spreadsheets showing the actual measured values
3) Graph View – plotted in a variety of graphs
For more details on the Multi-Feature Window, refer to Chapter 4, **Reviewing Multiple Features of a Plate**.

How can I compare a feature across several plates?
To compare a feature across several plates, you should review the data using the Multi-Plate Window. This window provides the same three views as the Multi-Feature Window. For more details on the Multi-Plate Window, refer to Chapter 5, **Reviewing a Feature Across Several Plates.**

I'd like to display all three views for a plate at one time. Can I do this?
Yes. To display a plate representation, spreadsheet, and graph of the results for a plate at one time, you should review the data using the Well Detail Window. For more details on the Well Detail Window, refer to Chapter 3, **Reviewing the Well Details of a Plate**.

How can I view images and cell measurements?
You can display both of these items in the Cell Detail Window, which you can access from any of the following three windows: the Well Detail Window, the Multi-Feature Window, or the Multi-Plate Window. For more information on the Cell Detail window, refer to Chapter 6, **Viewing the Cell Details**. Field information is also available in the Field Detail Window, see Chapter 7, **Viewing the Field Details**.

How do I navigate around the Cellomics™ Data Viewer application?
The application has a main "document" called the Viewer Main Window that remains open. From this main window, you can open and display other "documents", such as a plate shown in the Multi-Feature Window or several plates shown in the Multi-Plate Window. The menu bar and toolbar at the top of the window correspond to the "document" that currently has focus. This type of interface is referred to as a "Multiple Document Interface" or MDI.

Chapter
3

Reviewing the Well Details of a Plate

The Cellomics™ Data Viewer allows you to easily review the well details of a scanned plate. This type of analysis is done using the Well Detail Window. In the Well Detail Window, you view the data for a plate in three ways on one screen:

- In a color-coded plate representation showing the status of the wells,
- In a graph visually showing how the wells relate to one another, and
- In a spreadsheet showing the actual measured values for each well.

This chapter explains the extensive options built into the Well Detail Window of the Cellomics™ Data Viewer.

Opening the Well Detail Window

To open the Well Detail Window,

1) In the Viewer Main Window, select the plate(s) that you want to review from the plate list.

   To select a single plate: Click on the plate that you want to review.
   To select a group of continuous plates: Click on the first plate that you want to select. While holding down the Shift key, click on the last plate that you want to select. Release the Shift key. All of the plates in between these two plates will be selected.
   To select a group of non-continuous plates: Click on one of the plates that you want to select. While holding down the Ctrl key, click on all of the other plates that you want to select. Release the Ctrl key. All of the plates that you clicked on will be selected.

   For details on how to find plates, refer to **Quick Tour 1 – Finding Plates**, in Chapter 2 of this manual.

2) Select **Open Well Detail** from the **File** menu.
   -or-
   Click the **Open Well Detail** button located on the toolbar.
   -or-
   Right-click on your selection, then choose **Open Well Detail** from the shortcut menu.

Each plate that you selected will open in a separate Well Detail Window. An example of the Well Detail Window is shown and labeled in the figure below.

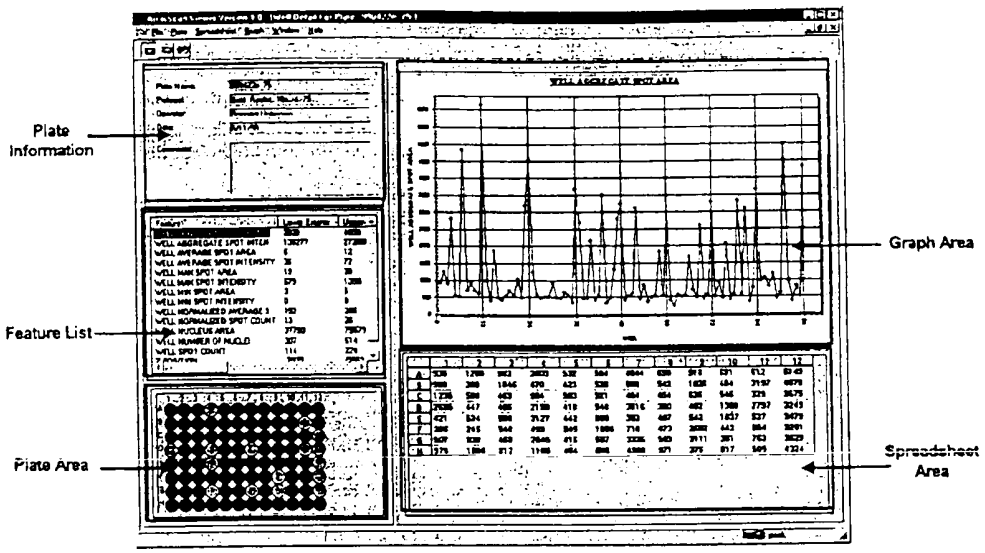

Figure 3.1 Each section of the Well Detail Window (96-well format) is labeled in this figure. This window shows you the plate information, feature list, plate representation, graph, and spreadsheet of a plate.

Well Detail Window Sections

A brief description of each section in the Well Detail Window follows.

Section	Description
Plate Information	Shows the plate name, protocol used, operator, date the plate was scanned, and any comments listed in the Viewer Main Window.
Feature List	Provides a list of the features measured for the selected plate. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed. For more information on these items, see **Adjusting the Feature Thresholds** later in this chapter.
Plate Area	Shows a color-coded plate representation showing the well status for the selected feature.
Graph Area	Shows a plot of the well data for the selected feature.
Spreadsheet Area	Shows the actual measured values in each well for the selected feature. The rows and columns of the spreadsheet correspond to the rows and columns of the plate. Wells that have not been scanned show no value.

These sections work together to help you review the data for the wells, as described below:

- Clicking on a well in the plate representation highlights the corresponding data point in the graph and well in the spreadsheet, and shows the current well position in the status bar.
- Clicking on a data point in the graph highlights the corresponding well in the spreadsheet and the graph, and shows the current well position in the status bar.
- Clicking on a well in the spreadsheet highlights the corresponding data point in the graph and well in the plate representation, and shows the current well position in the status bar.

Well Detail Window Toolbar

The toolbar located across the top of the Well Detail Window contain three buttons, each of which is explained below.

Image	Toolbar Button Name	What it Does
	Plate Mode	Places the window in Plate mode. In Plate mode, of the wells in the plate are plotted in one continuous line. The well number is plotted on the x-axis and the feature is plotted on the y-axis.
	Row Mode	Places the window in Row mode. In Row mode, the rows selected in the spreadsheet are shown, with each row being plotted using a separate symbol-coded line. The column number is plotted on the x-axis and the feature is plotted on the y-axis.
	Well Mode	Places the window in Well mode. In Well mode, the wells selected in the spreadsheet are shown, with each row of selected wells being plotted using a separate symbol-coded line. The column number is plotted on the x-axis and the feature is plotted on the y-axis.

Clicking these toolbar buttons is equivalent to selecting **Mode** on the **Spreadsheet** menu. For more information on changing modes, see **Changing the Mode Displayed** later in this chapter.

Choosing the Feature Displayed

The feature list in the Well Detail Window shows you the features measured for the plate you are reviewing. When the window opens, data for the first feature in the feature list is displayed.

To change the feature displayed in the Well Detail Window,

- Double-click on the feature that you want to view.

Changing the Mode Displayed

By default, the Well Detail Window shows you the data in Plate mode, which means that the wells in the plate are plotted in one continuous line, with the well number on the x-axis and the feature on the y-axis. Alternatively, you can plot the data in Row mode or Well mode. For more details on the three modes, see **Well Detail Window Toolbar** earlier in this chapter.

To change the mode displayed in the Well Detail Window,

- Select **Mode** from the **Spreadsheet** menu, then select the mode that you want to use from the sub-menu.

  -or-

  Right-click on the spreadsheet, select **Mode** from the shortcut menu, then select the mode that you want to use from the sub-menu.

  -or-

  Click the toolbar corresponding to your choice of modes.

To change the rows plotted in Row mode,

- Select the rows in the spreadsheet that you want to plot by clicking on the row headers.

  To select one row in the spreadsheet: Click on the header for the row that you want to select.
  To select continuous rows in the spreadsheet: While holding down the Shift key, click on the header for the first row that you want to select, then click on the header for the last row that you want to select. Release the Shift key. All of the rows in between these two rows will be selected.

To change the wells plotted in Well mode,

- Select the wells in the spreadsheet that you want to plot.

  To select one well in the spreadsheet: Click on the well that you want to select.
  To select contiguous wells in the spreadsheet: While holding down the Shift key, click on the starting (upper-left) well that you want to select, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

Adjusting the Feature Thresholds

The feature list in the Well Detail Window shows you the features measured for the plate that you are viewing. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed. Each of these items is explained briefly below.

Item	Description
Lower Extents	The lower limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Upper Extents	The upper limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Display Min	The value used as the minimum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** later in this chapter.
Display Max	The value used as the maximum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** later in this chapter.
STD Feature	The standard deviation of the feature. If available for the feature, this is measured during the scan.
STE Feature	The standard error of the feature. If available for the feature, this is measured during the scan.
COV Feature	The coefficient of variation of the feature. If available for the feature, this is measured during the scan.

To adjust the feature thresholds,

1) From the **Plate** menu, select **Change Thresholds**.
   -or-
   Right-click on the feature list, then choose **Change Thresholds** from the shortcut menu.
   -or-
   Right-click on the plate, then choose **Change Thresholds** from the shortcut menu.

The Set Feature Extents dialog box appears as shown in the figure below.

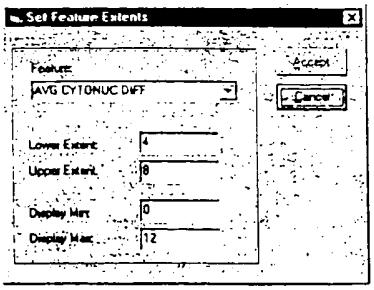

Figure 3.2 Set Feature Extents dialog box.

2) Select the feature that you want to adjust from the **Feature** drop-down list.

3) Change the Lower Extent, Upper Extent, Display Min, or Display Max for that feature as desired.

4) Click the **Accept** button.
The display in the Well Detail Window is updated automatically to reflect the changes that you made.

Working with the Plate Representation Options

The Well Detail Window provides you with extensive options for both modifying the appearance of the plate representation and obtaining plate representation data.

Modifying the Plate Representation Appearance

Switching Between Normal and Large View

Normally the plate representation shown in the Well Detail Window is displayed in normal view, which means that it is sized to fit the designated plate area. To make the plate representation fill the entire window area, you can switch to large view.

To switch between normal and large view,

- From the **Plate** menu, select **Maximize**.
  -or-
  Right-click on the plate representation, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.

- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Changing the Well Shading

By changing the well shading, you can choose to color-code the wells using one of two options: (1) Above, Below, and In Range colors or (2) ten different colors expressed as a percentage of the maximum value called "10 Increments Between Min and Max".

For more information on this color-coding, see **Viewing and Changing the Legend Colors** in the next section of this chapter.

To change the well shading,

1) From the **Plate** menu, select **Shading**.
   -or-
   Right-click on the plate representation, then choose **Shading** from the shortcut menu.

2) From the sub-menu, select the type of shading that you want to display.
   A checkmark is placed next to the option that is currently selected.

Viewing and Changing the Legend Colors

The wells in the plate representation shown in the Well Detail Window are color-coded based on your selected shading option. For more information on shading options, see **Changing the Well Shading** earlier in this chapter. If you need a reference for the colors or want to change the colors, the Well Detail Window provides you with the options.

To view the legend colors,

1) From the **Plate** menu, select **Legend**.
   -or-
   Right-click on the plate representation, then choose **Legend** from the shortcut menu.

The Options dialog box appears as shown in the figure below.

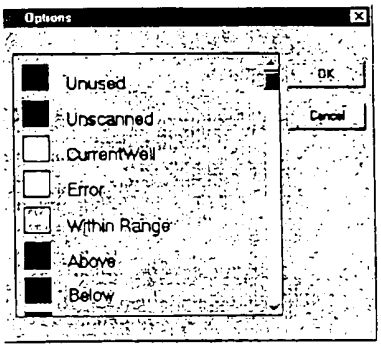

Figure 3.3 Options dialog box.

2) When you are finished viewing the legend, click the **OK** button to close the Options dialog box.

To change the legend colors,

1) From the **Plate** menu, select **Legend**.

   -or-

   Right-click on the plate representation, then choose **Legend** from the shortcut menu.

The Options dialog box appears as shown in the figure below.

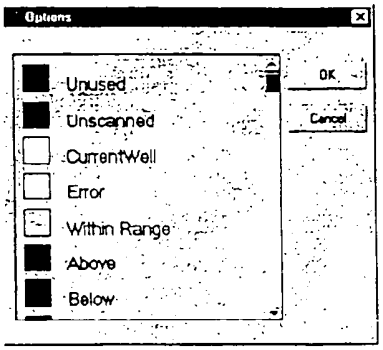

Figure 3.4 Options dialog box.

2) Double-click the color block next to the color that you want to change.

The Color dialog box appears as shown in the figure below.

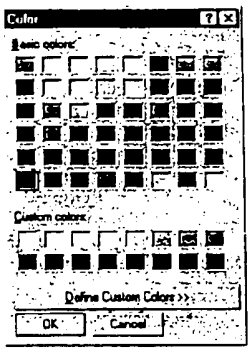

Figure 3.5 Color dialog box.

3) Click the desired color.
   If you want to use a color that isn't displayed, click **Define Custom Colors**. Use the slider to choose a color, or type values into the Hue/Sat/Lum or Red/Green/Blue boxes.

4) Click the **OK** button to close the Color dialog box.

5) Click the **OK** button to close the Options dialog box.

Obtaining Plate Representation Output

Printing the Plate Representation

To print the plate representation,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

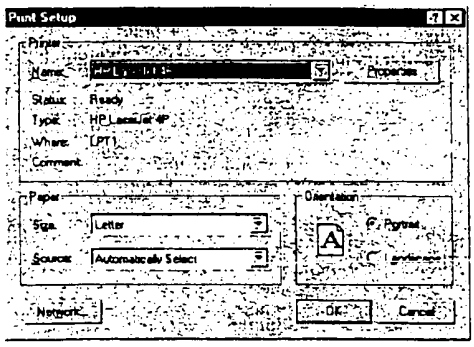

Figure 3.6 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) From the **Plate** menu, select **Print**.
-or-
Right-click on the plate representation, then choose **Print** from the shortcut menu.
The plate representation is printed along with the following identifying information: plate name, protocol, operator, date that the plate was scanned, scan comments, and the plate legend.

Working with the Spreadsheet Options

The Well Detail Window provides you with extensive options for both modifying the appearance of the spreadsheet and obtaining spreadsheet data.

Modifying the Spreadsheet Appearance

Adjusting the Number of Decimal Places

The Well Detail Window allows you to specify the precision of the values shown in the spreadsheet.

To adjust the number of decimal places displayed,

1) From the **Spreadsheet** menu, select **Decimal Places**.
   -or-
   Right-click on the spreadsheet, then choose **Decimal Places** from the shortcut menu.

The Get Decimal Places dialog box appears as shown in the figure below.

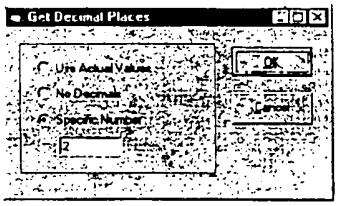

Figure 3.7 Get Decimal Places dialog box.

2) Select the option you want to use. A brief description of each option follows.

Option	Description
Use Actual Values	Shows the values in the available precision saved during the scan.
No Decimals	Shows the values as whole numbers or integers.
Specific Number	Shows the values to the number of decimal places that you enter in the box.

3) Click the **OK** button to close the Get Decimal Places dialog box.

Switching Between Normal and Large View

Normally the spreadsheet shown in the Well Detail Window is displayed in normal view, which means that it is sized to fit the designated spreadsheet area. To make the spreadsheet fill the entire window area, you can switch to large view.

To switch between normal and large view,

- From the **Spreadsheet** menu, select **Maximize**.
  -or-
  Right-click on the spreadsheet, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.
- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Displaying the Well Color in the Spreadsheet

The Well Detail Window provides you with the Color option, which allows you to choose whether you want to display the well color associated with each value in the spreadsheet. When the Color option is turned on, the background color of the spreadsheet cell changes to match the color of the well in the plate representation. By default, this option is turned off.

To toggle the Color option,

- From the **Spreadsheet** menu, select **Color**.
  -or-
  Right-click on the spreadsheet, then choose **Color** from the shortcut menu.
  A checkmark is placed next to **Color** to indicate that this option is turned on.

- To turn this option off, repeat the above procedure.
  The checkmark is now removed.

For more information on the colors used, refer to **Viewing and Changing the Legend Colors** discussed previously in this chapter.

Obtaining Spreadsheet Output

Printing the Spreadsheet

To print the spreadsheet,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

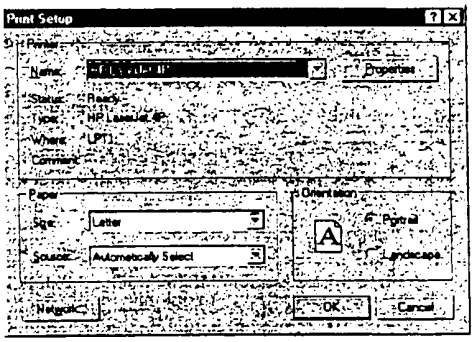

Figure 3.8 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) From the **Spreadsheet** menu, select **Print**.
   -or-
   Right-click on the spreadsheet, then choose **Print** from the shortcut menu.

Copying the Spreadsheet to the Windows Clipboard

An easy way to transfer the values in the spreadsheet to another application is by copying them to the Windows clipboard, then pasting them into your application. For instance, if you copy a spreadsheet and paste it into Microsoft® Word, the pasted information appears as shown in the figure below.

70.65	58.61	67.20	90.29	80.86	65.26
90.45	65.11	58.90	12.63	66.45	20.45
86.33	18.56	78.32	18.33	66.96	56.20
56.45	90.66	15.09	80.55	33.74	85.23
90.44	66.22	56.88	87.77	65.23	74.30
67.45	90.66	90.88	99.43	88.30	89.10

Figure 3.9 An example of some spreadsheet data pasted into an application.

When pasted into an application, the values in the spreadsheet are arranged in rows and columns that are separated by tabs.

To copy the spreadsheet to the Windows clipboard,

- From the **Spreadsheet** menu, select **Copy**.

  -or-

  Right-click on the spreadsheet, then choose **Copy** from the shortcut menu.

Exporting the Spreadsheet

The Well Detail Window allows you to export the values in the spreadsheet to a Comma Separated Value (.CSV) file. After you do so, you may import this file into any application that supports the .CSV file type, such as Microsoft® Excel.

To export the values in the spreadsheet,

1) From the **Spreadsheet** menu, select **Export**.

   -or-

   Right-click on the spreadsheet, then choose **Export** from the shortcut menu.

The Export Spreadsheet Data dialog box appears as shown in the figure below.

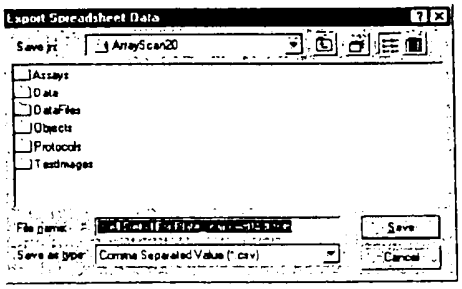

Figure 3.10 Export Spreadsheet Data dialog box.

2) From the available folder list, select the path to which you want to save the file.

3) Enter a name for the file in the **File Name** box.
   A suggested name for the file is entered automatically. If you want to use this name, you don't need to do anything here. The .CSV file type is selected automatically.

4) Click the **Save** button.

Transferring the Spreadsheet to Excel

Instead of exporting the spreadsheet data to a .CSV file, then importing it into Microsoft® Excel, you can immediately transfer the values to an Excel worksheet. Using this option requires that you have Microsoft® Excel 97 installed on the computer.

To transfer the values in the spreadsheet immediately to Excel,

- From the **Spreadsheet** menu, select **Transfer to Excel**.
  -or-
  Right-click on the spreadsheet, then choose **Transfer to Excel** from the shortcut menu.
  A dialog box confirms that this is what you want to do. If you choose "Yes", the Excel application is opened automatically and displays the values from the spreadsheet.

Working with the Graph Options

The Well Detail Window provides you with extensive options for both modifying the appearance of the graph and obtaining graph data.

Modifying the Graph Appearance

Zooming in on a Portion of the Graph

The Well Detail Window allows you to zoom in on a portion of the graph to display it in more detail.

To zoom in on a portion of the graph,

1) Hold down your primary mouse button on a starting point in the graph.
2) Drag the box around the area that you want to zoom in on.
3) Release your mouse button.

To zoom the graph back out,

- Double-click on one of the features in the feature list.

Changing the Plotting Method

The plotting method for the graph in the Well Detail Window can be changed to one of many different types. Each available plotting method is explained below.

Plotting Method	Description
Points	Shows the data point for each value.
Line	Connects each value with the next and previous value using a straight line.
Bar	Shows a bar from the x-axis up to each value.
Area	Shows the total area below the line that results from connecting each value to the next and previous value using a straight line.
Sticks	Shows a straight line from the x-axis up to each value.
Spline	Connects each value with the next and preceding value using a spline (S-curve).
Points + Best Fit Line	Shows the data points and the best fit straight line calculated from the data points.
Points + Best Fit Curve	Shows the data points and the best fit curve calculated from the data points.
Points + Line	Shows the data points and the straight lines that connect each data point to the adjacent data points.
Points + Spline	Shows the data points and the spline that connects each data point to the adjacent data points.

To change the plotting method,

1) From the **Graph** menu, select **Plotting Method**.
   -or-
   Right-click on the graph, then choose **Plotting Method** from the shortcut menu.

2) From the sub-menu, select the plotting method that you want to use for the graph.

Showing and Hiding Grid Lines

The Well Detail Window allows you to choose the grid lines that you want to display in the graph. You can choose to display no grid lines, grid lines coming from the x-axis, grid lines coming from the y-axis, or grid lines coming from both the x- and y-axes. If you choose to view x-axis grid lines, you can specify the interval for the grid lines.

To choose the grid lines you want to display,

1) From the **Graph** menu, select **Grid Lines**.
   -or-
   Right-click on the graph, then choose **Grid Lines** from the shortcut menu.

2) From the sub-menu, select the grid lines that you want to display.

If you choose an option using x-axis grid lines, you can specify the interval by,

1) Select **Grid Lines** from the **Graph** menu.
   -or-
   Right-click on the graph, then choose **Grid Lines** from the shortcut menu.

2) Select **X Axis Lines Every** from the sub-menu, then choose the interval from the second sub-menu.

Changing the Data Point Size

By default, the Well Detail Window uses a small point size to display the data points in the graph. If you wish, you can change the data point size to very small, medium, or large instead.

To change the data point size,

1) From the **Graph** menu, select **Point Size**.
   -or-
   Right-click on the graph, then choose **Point Size** from the shortcut menu.

2) From the sub-menu, select the data point size that you want to use.

Moving the Grid from the Back to the Front

By default, the Well Detail Window places the grid behind the graph. If you wish, you can move the grid to the front.

Note: The effect of this option is noticeable using certain plotting methods, such as the Bar and Area plotting methods.

To toggle the grid from the back to the front,

- From the **Graph** menu, select **Grid in Front**.
  -or-
  Right-click on the graph, then choose **Grid in Front** from the shortcut menu.
  A checkmark is placed next to **Grid in Front** to show that the option is turned on.

- To return the grid to the back, repeat the preceding procedure.
  The checkmark is now removed.

Marking the Data Points

By default, the Well Detail Window marks the data points in the graph if marking the points is part of the plotting method. If you want data points to be marked all of the time, you can turn on the Mark Data Points option.

To mark data points all of the time,

- From the **Graph** menu, select **Mark Data Points**.
  -or-
  Right-click on the graph, then choose **Mark Data Points** from the shortcut menu.
  A checkmark is placed next to **Mark Data Points** to show that the option is turned on.

- To turn off the Mark Data Points option, repeat the preceding procedure.
  The checkmark is now removed.

Showing the Thresholds

By default, the graph in the Well Detail Window does not show the upper or lower thresholds for the selected feature. By changing the Show Thresholds option, you can display the thresholds. A sample graph with the threshold lines displayed is shown below.

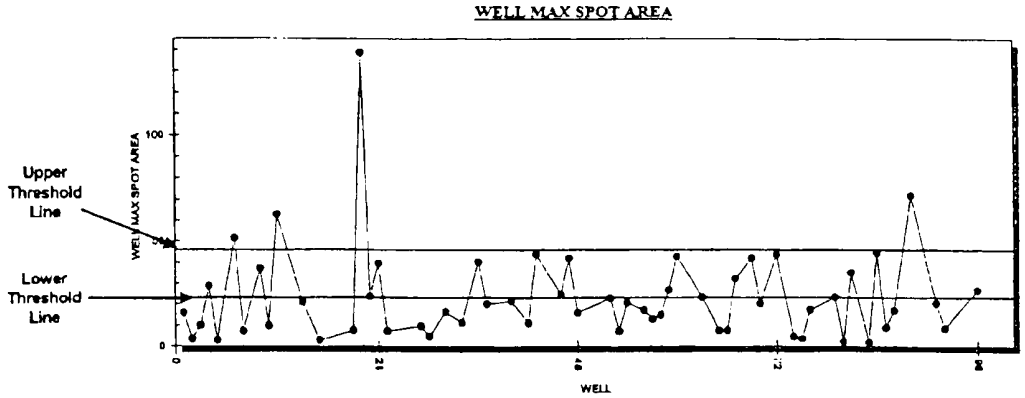

Figure 3.11 A sample graph in the Well Detail Window showing the upper and lower thresholds.

To show the thresholds in the graph,

- From the **Graph** menu, select **Show Thresholds**.
  -or-
  Right-click on the graph, then choose **Show Thresholds** from the shortcut menu.
  A checkmark is placed next to **Show Thresholds** to show that the option is turned on.

- To hide the thresholds, repeat the above procedure.
  The checkmark is now removed.

Showing the Error Bars

By default, the graph in the Well Detail Window does not show the error bars for the data points. If you want, you can view the error bars for the data points by turning on the Error Bar option. Error bars can be displayed as standard deviation (STD), standard error (STE), or coefficient of variation (COV). A sample graph displaying the standard deviation for the data points is shown next.

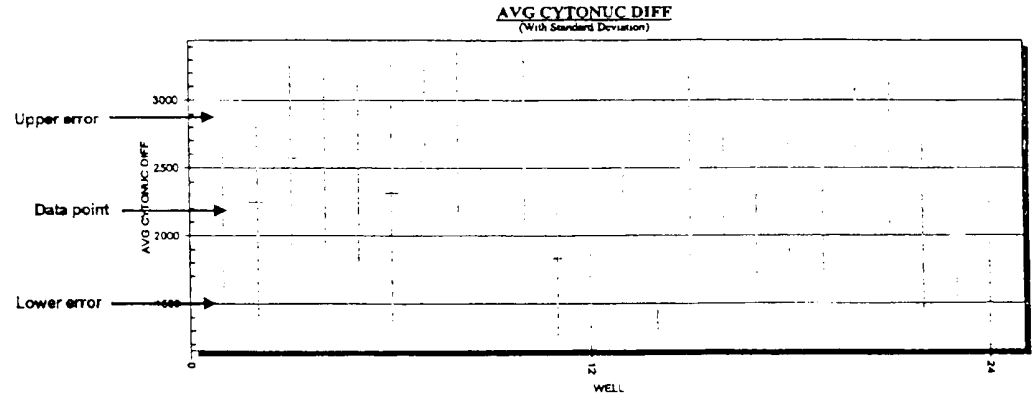

Figure 3.12 A sample graph in the Well Detail Window showing standard deviation.

Note: Error bars can be shown if the standard deviation (STD), standard error (STE), or coefficient of variation (COV) for the feature that you are reviewing was measured during the scan. The feature list shows you if these items were measured. If the item was not measured the STD Feature, STE Feature, and/or COV Feature columns in the feature list will show the words "Not Available" and the error bars option will be grayed out. If these items were measured, the STD Feature, STE Feature, and/or COV Feature columns in the feature list will show the name of the measured feature.

To show error bars,

1) From the **Graph** menu, select **Error Bars**.
   -or-
   Right-click on the graph, then choose **Error Bars** from the shortcut menu.
   A checkmark is placed next to **Error Bars** to show that the option is turned on.

2) From the sub-menu, select the type of error bars that you want to display.

Switching Between Normal and Large View

Normally the graph shown in the Well Detail Window is displayed in normal view, which means that it is sized to fit the designated graph area. To make the graph fill the entire window area, you can switch to large view.

To switch between normal and large view,

- From the **Graph** menu, select **Maximize**.
  -or-
  Right-click on the graph, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.

- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Customizing the Graph

The Well Detail Window provides you with a very powerful option. It allows you to fully customize the graph. While the most common graph customization options are incorporated into the **Graph** menu, many more options are available here.

To customize the graph,

- From the **Graph** menu, select **Customize**.
  -or-
  Right-click on the graph, then choose **Customize** from the shortcut menu.

The General tab of the Customization dialog box appears as shown in the figure below.

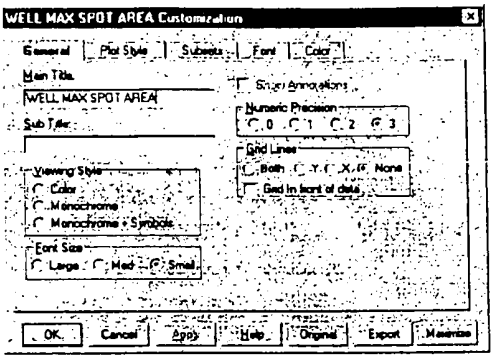

Figure 3.13 General tab of the Customization dialog box.

The buttons available to you in the Customization dialog box and the options are explained in the rest of this section.

Button	Description
OK	Closes the Customization dialog box accepting customization changes that you made.
Cancel	Closes the Customization dialog box canceling customization changes that you made.
Apply	Allows you to view a change that you made to a customization option immediately without closing the Customization dialog box.
Help	Displays the Customization dialog box help system.
Original	Returns the graph to its original state and closes the Customization dialog box.
Export	Displays the Exporting dialog box. For more information, refer to the section in this chapter called **Exporting the Graph**.
Maximize	Displays the graph so that it takes up the entire screen. To close the full-screen graph, click in the upper left corner of the graph or press your ESC key.

To change the options on the General tab,

1) If it is not already open, access the Customization dialog box and select the General tab.

The General tab is shown in the figure below.

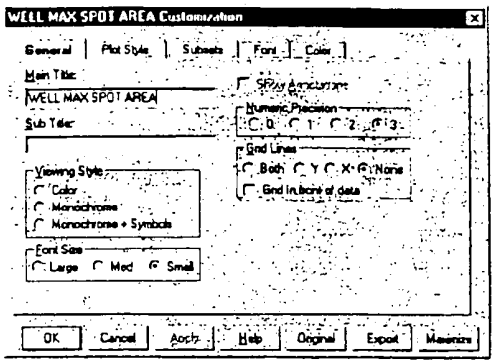

Figure 3.14 General tab of the Customization dialog box.

2) Change the options as necessary. The available options are summarized below.

Option	Description
Main Title	Used as the primary title at the top of the graph. This-box allow you to add a title by entering one, to edit the title by changing the text in the box, or to delete the title by clearing the box.
Sub Title	Used as the secondary title at the top of the graph. This-box allow you to add a title by entering one, to edit the title by changing the text in the box, or to delete the title by clearing the box.
Viewing Style	**Color** – Shows the graph in color. **Monochrome** – Shows the graph in black and white. **Monochrome + Symbols** – Shows the graph in monochrome, using symbols to differentiate lines plotted on one graph.
Font Size	Displays the graph using a large, medium, or small font size
Show Annotations	Option not available.
Numeric Precision	Controls the number of decimal places used when exporting Text / Data Only using the Export button in the Customization dialog box.
Grid Lines	Controls how grid lines are displayed in the graph. **Both** – Displays grid lines from both the x and y-axes. **Y** – Displays horizontal grid lines starting at the y-axis. **X** – Displays vertical grid lines starting at the x-axis. **None** – Shows no grid lines. **Grid in Front of Data** – Toggles whether the grid lines appear in front or behind the data. The effect of this option is noticeable using certain plotting methods, such as the Bar and Area plotting methods.

To change the options on the Plot Style tab,

1) If it is not already open, access the Customization dialog box and select the Plot Style tab.

The Plot Style tab is shown in the figure below.

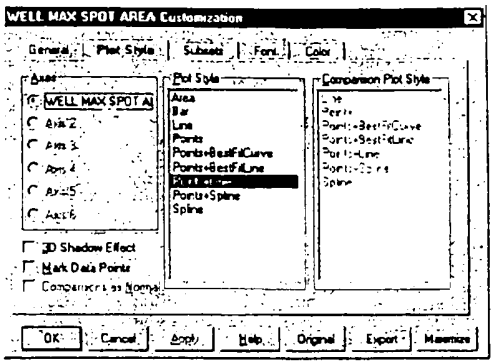

Figure 3.15 Plot Style tab of the Customization dialog box.

2) Change the options as necessary. The available options are summarized below.

Option	Description
Axes	Shows the variable being plotted. This cannot be changed.
3D Shadow Effect	With certain plotting methods, checking this checkbox gives the bars, points, or areas of the graph a 3D effect by placing a placing shadow behind the item.
Mark Data Points	Shows the location of the data points no matter which plotting method is selected.
Plot Style	Controls the type of graph displayed. For more information on the plotting methods listed, see the section earlier in this chapter on **Changing the Plotting Method**.
Comparison Plot Style	Option not available.

To change the options on the Subsets tab,

1) If it is not already open, access the Customization dialog box and select the Subsets tab.

The Subsets tab is shown in the figure below.

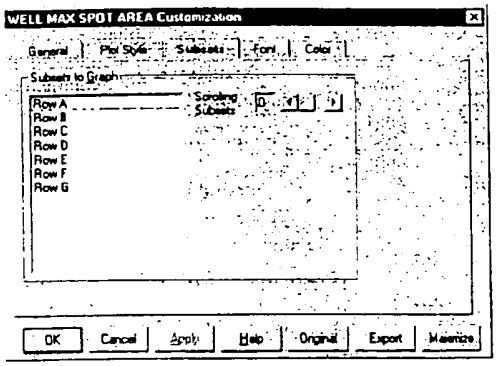

Figure 3.16 Subsets tab of the Customization dialog box.

2) Change the options as necessary. These options are applicable if the graph includes multiple subsets, such as for a graph of multiple rows in Row or Well mode. The options are summarized below.

Option	Description
Subsets to Graph	Shows the graph subsets available.
Scrolling Subsets	Controls the graph subsets shown.
	If no subsets are selected and Scrolling Subsets is set to zero, the graph displays the subsets.
	If no subsets are selected and Scrolling Subsets is a non-zero value, the graph displays the number of subsets shown in the Scrolling Subsets box beginning with the first subset.
	If subsets are selected in the Subsets to Graph list and Scrolling Subsets is set to zero, the graph displays the selected subsets.
	If subsets are selected in the Subsets to Graph list and Scrolling Subsets is a non-zero value, the graph displays the selected subsets as permanent subsets in the graph and shows additional subsets depending on the number in the Scrolling Subsets box.

To change the options on the Font tab,

1) If it is not already open, access the Customization dialog box and select the Font tab.

The Font tab is shown in the figure below.

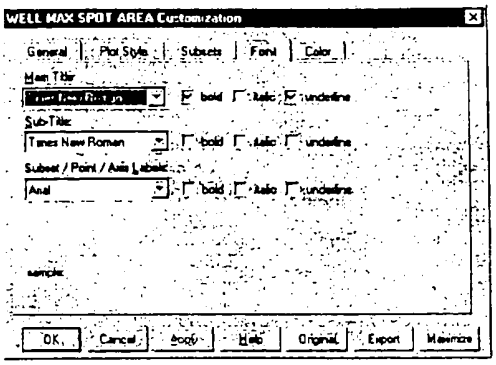

Figure 3.17 Font tab of the Customization dialog box.

2) Change the options as necessary. The available options are summarized below.

Option	Description
Main Title	Allows you to change the font used for the main title of the graph and choose whether you want to make it bold, italicized, or underlined.
Sub Title	Allows you to change the font used for the sub-title of the graph and choose whether you want to make it bold, italicized, or underlined.
Subset/Point/Axis Labels	Allows you to change the font used for these three items in the graph and choose whether you want to make them bold, italicized, or underlined.

To change the options on the Color tab,

1) If it is not already open, access the Customization dialog box and select the Color tab.

The Color tab is shown in the figure below.

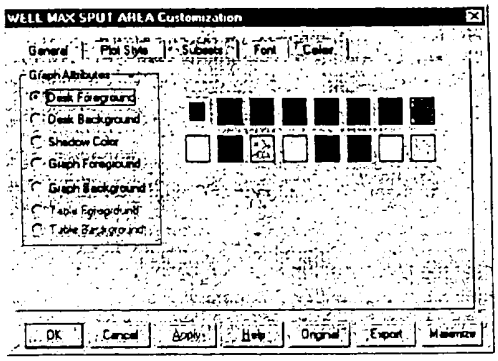

Figure 3.18 Color tab of the Customization dialog box.

2) Change the options as necessary. The available options are summarized below.

Option	Description
Graph Attributes	Allows you to set the color of certain graph attributes by choosing the attribute, then clicking on the color that you prefer. **Desk Foreground** – The color of the titles, subset/point labels, grid numbers, and axis labels outside of the graph. **Desk Background** – The color of the area behind the bounding rectangle of the graph's grid. **Shadow Color** – The color of the shadow around the graph. To remove the shadow, choose the same color as the Desk Background. **Graph Foreground** – The bounding rectangle, grid lines, and scale markers in the graph. **Graph Background** – The background of the graph itself. **Table Foreground** – Option not available. **Table Background** – Option not available.

Obtaining Graph Output

Printing the Graph

To print the graph,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

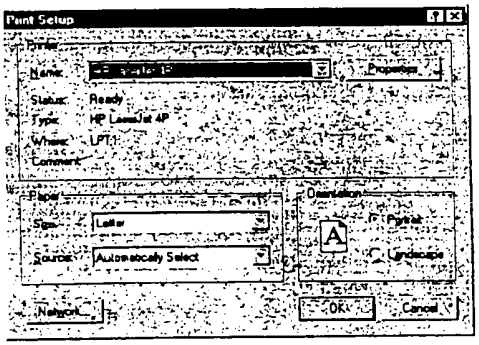

Figure 3.19 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) From the **Graph** menu, select **Print**.
-or-
Right-click on the graph, then choose **Print** from the shortcut menu.

Copying the Graph to the Windows® Clipboard

An easy way to transfer the graph to another application is by copying it to the Windows® clipboard, then pasting it into your application.

To copy the graph to the Windows® clipboard,

- From the **Graph** menu, select **Copy**.
  -or-
  Right-click on the graph, then choose **Copy** from the shortcut menu.

Exporting the Graph

The Well Detail Window allows you to export the graph either as a Windows® bitmap (.BMP) or a Windows® metafile (.WMF). After you do so, you may import this file into any application that supports these file types, such as Adobe® PhotoShop®. In addition to exporting the graph as an image, you can export the text and data only.

To export the graph,

1) From the **Graph** menu, select **Export**.
   -or-
   Right-click on the graph, then choose **Export** from the shortcut menu.

The Exporting dialog box appears as shown in the figure below.

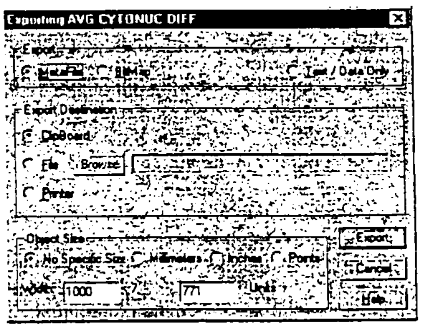

Figure 3.20 Exporting dialog box.

2) Choose the type of export that you want to do.
   You can save the graph either as a Windows® metafile (.WMF) or a Windows® bitmap (.BMP) by selecting either the **Metafile** or **Bitmap** option. If you want to export just the text and data, choose the **Text / Data Only** option.

3) Select the export destination.
   Depending on the type of export that you chose in the previous step, you may be able to export the graph to the Windows® clipboard, to a file, or to the printer by selecting the **Clipboard, File**, or **Bitmap** option. Unavailable options are grayed out.

4) If you choose the **File** option in Step 3, click the **Browse** button to show the Save As dialog box shown below. Then, enter a name and location for the file, and click the **OK** button. If you didn't choose the **File** option, skip this step.

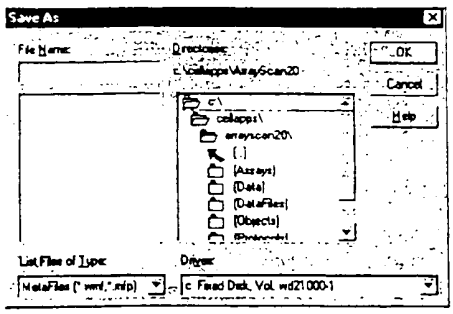

Figure 3.21 Save As dialog box.

5) Select the object size for the exported graph, and enter the dimensions in the **Width** and **Height** boxes.
The options available to you here depend on the type of export that you chose in Step 2 and the export destination that you chose in Step 3. The available options are summarized below.

Export Type	Export Destination	Available Object Size Options
Metafile	Clipboard	No specific size, millimeters, inches, and points
Metafile	File	No specific size, millimeters, inches, and points
Metafile	Printer	Full page, millimeters, inches, and points
Bitmap	Clipboard	Pixels
Bitmap	File	Pixels
Bitmap	Printer	Not an available combination
Text / Data Only	Clipboard	None
Text / Data Only	File	None
Text / Data Only	Printer	Not an available combination

6) Click the **Export** button, or alternatively, the **Print** button if you chose a destination of "Printer".

7) If you chose an export destination of "Printer", select a printer, then click the **OK** button in the Printing dialog box that appears, as shown below.
If you need to change the printer settings, click the **Setup** button, then adjust the settings.

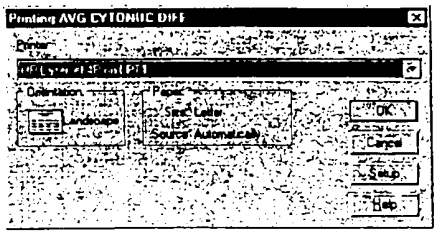

Figure 3.22 Printing dialog box.

Viewing More Detailed Data

Viewing the Cell Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed cell data. Viewing the cell details is available from many windows in the Cellomics™ Data Viewer, including the Well Detail window.

This section explains how to access the cell details from the Well Detail Window. For more details on the Cell Detail Window, refer to Chapter 6, **Viewing the Cell Details**.

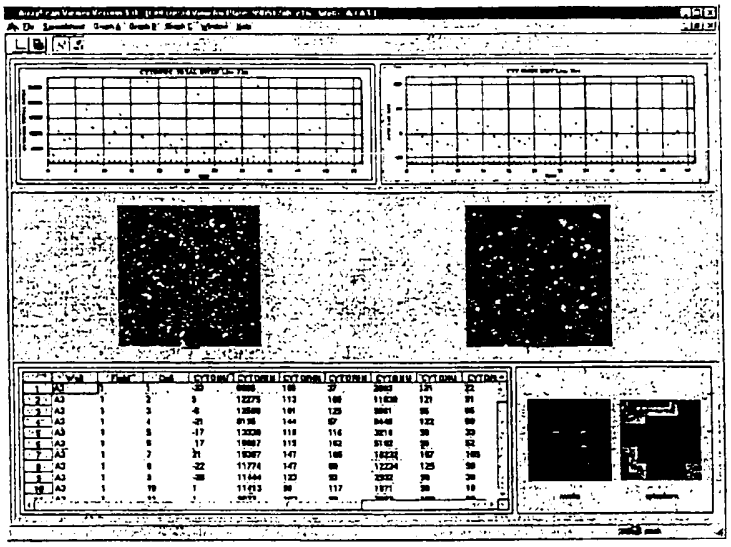

Figure 3.23 The Cell Detail Window.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

To view the cell details of an individual well,

1) Click on the well in the plate representation or spreadsheet for which you want to view the cell details.

2) Select **Cell Details** from the corresponding **Plate** or **Spreadsheet** menu.
   -or-
   Right-click on your selection, then choose **Cell Details** from the shortcut menu.

To view the cell details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet, for which you want to view the cell details.
   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.
   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.
   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Select **Cell Details** from the **Spreadsheet** menu.
   -or-
   Right-click on the selection that you made in the spreadsheet, then choose **Cell Details** from the shortcut menu.

Viewing the Field Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed field data. Viewing the field details is available from many windows in the Cellomics™ Data Viewer, including the Well Detail window.

This section explains how to access the field details from the Well Detail Window. For more details on the Field Detail Window, refer to Chapter 7, **Viewing the Field Details**.

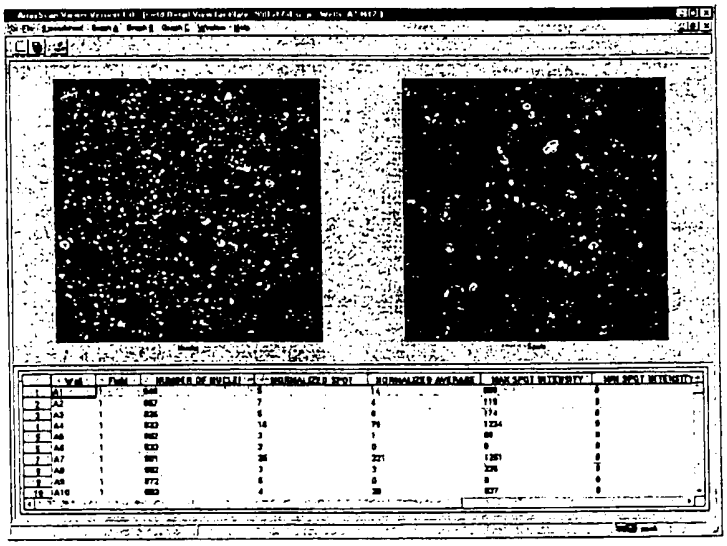

Figure 3.24 The Field Detail Window.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

To view the field details of an individual well,

1) Click on the well in the plate representation or spreadsheet for which you want to view the field details.

2) Select **Field Details** from the corresponding **Plate** or **Spreadsheet** menu, depending on the view you are in.
   -or-
   Right-click on your selection, then choose **Field Details** from the shortcut menu.

To view the field details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet, for which you want to view the field details.
   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.
   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.
   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Select **Field Details** from the **Spreadsheet** menu.
   -or-
   Right-click on the selection that you made in the spreadsheet, then choose **Field Details** from the shortcut menu.

FREQUENTLY ASKED QUESTIONS

What does the Well Detail Window show me?
The Well Detail Window shows the summarized results for each well in the plate. It shows you a color-coded plate representation, the actual values, and a graph of the results in one window.

How do I open the Well Detail Window?
Starting at the Viewer Main Window, select the plate that you want to display in the Well Detail Window, then click the **Open Well Detail** toolbar button or choose **Open Well Detail** from the **File** Menu or the shortcut menu.

I'm preparing a document. Can I copy a plate representation, graph, or spreadsheet into Microsoft® Word?
You can copy either the graph or the spreadsheet, but not the plate representation. To copy either one to the Windows® clipboard, right-click on the item that you want to copy, then choose **Copy** from the shortcut menu. Paste the item into Word using a normal pasting operation.

Can I transfer the values in the spreadsheet to Microsoft® Excel?
Yes, you can do this one of two ways: (1) You can either export the values to a .CSV file, then import the .CSV file into Excel or (2) You can open Excel directly displaying the values in the spreadsheet. See **Exporting the Spreadsheet** and **Transferring the Spreadsheet to Excel** in this chapter for more details.

Are there any other ways for me to get data out of the Well Detail Window?
You can print the plate representation, graph, or spreadsheet by right-clicking on the item, then choosing **Print** from the shortcut menu. You can also export the graph as a Windows® bitmap, as a Windows® metafile, or as text / data only. See **Exporting the Graph** in this chapter for more information.

Chapter
4

Reviewing Multiple Features of a Plate

The Cellomics™ Data Viewer allows you to compare multiple features of a plate in one window. This type of analysis is done using the Multi-Feature Window. Once in the Multi-Feature Window, you can choose to review the data using one of three views:

- Plate View – displays the data in color-coded plate representations showing the status of the wells
- Spreadsheet View – displays the data in spreadsheets showing the actual measured values for each well
- Graph View – displays the data in graphs showing how the wells relate to one another

This chapter explains the extensive options built into the Multi-Feature Window of the Cellomics™ Data Viewer.

Opening the Multi-Feature Window

To open the Multi-Feature Window,

1) In the Viewer Main Window, click on the plate that you want to review from the plate list.

   For details on how to find plates, refer to **Quick Tour 1 – Finding Plates**, in Chapter 2 of this manual.

2) Do one of the following:

To open the plate in the Plate View:
Select **Open Multi-Feature in Plate View** from the **File** menu.
-or-
Click the **Open Multi-Feature in Plate View** button located on the toolbar.
-or-
Right-click on your selection, then choose **Open Multi-Feature in Plate View** from the shortcut menu.

To open the plate in the Spreadsheet View:
Select **Open Multi-Feature in Spreadsheet View** from the **File** menu.
-or-
Click the **Open Multi-Feature in Spreadsheet View** button located on the toolbar.
-or-
Right-click on your selection, then choose **Open Multi-Feature in Spreadsheet View** from the shortcut menu.

To open the plate in the Graph View:
Select **Open Multi-Feature in Graph View** from the **File** menu.

-or-

Click the **Open Multi-Feature in Graph View** button located on the toolbar.

-or-

Right-click on your selection, then choose **Open Multi-Feature in Graph View** from the shortcut menu.

Note: Once you open any of the Multi-Feature views, you can easily switch to another view.

The Select Features for Multi-Feature View dialog box, shown below, appears.

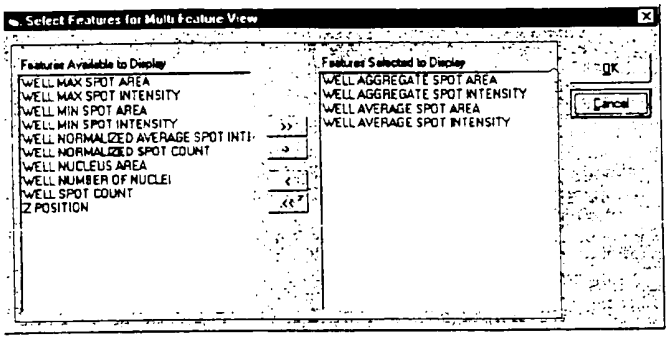

Figure 4.1 Select Features for Multi-Feature View dialog box.

3) Choose the features that you want to compare for the plate. You can compare a maximum of nine features at one time.

To add a feature to the display list: Click on the feature that you want to display in the Features Available to Display List, then click the **Add** button.

To display all of the features: Click in the Features Available to Display List, then click the **Add All** button.

To remove a feature from the display list: Click on the feature that you want to remove from the display in the Features Selected to Display List, then click the **Remove** button.

To remove all of the features: Click in the Features Selected to Display List, then click the **Remove All** button.

4) Click the **OK** button.

The Multi-Feature Window opens in the view that you chose. All three views, the Plate View, the Spreadsheet View, and the Graph View, are set up similarly. An example of the Multi-Feature Window shown in the Plate View appears in the figure below. For example, if this were the Spreadsheet View, spreadsheets would appear in the area where the plate representations currently appear.

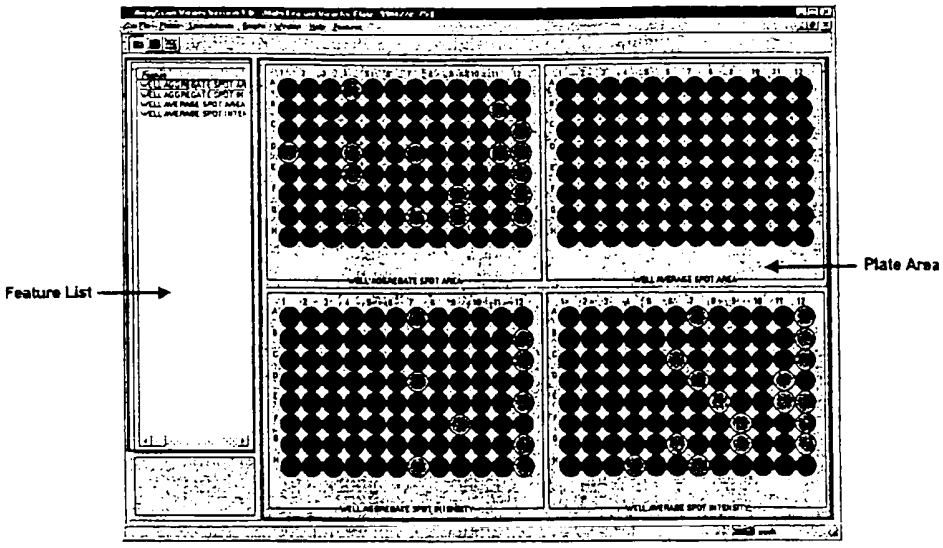

Figure 4.2 Each section of the Multi-Feature Window shown in the Plate View (96-well format) is labeled in this figure. This window allows you to compare several features for one plate.

Multi-Feature Window Sections

A brief description of each section of the Multi-Feature Window follows.

Section	Description
Feature List	Provides a list of the features that you chose to display for the selected plate. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed.
Plate / Spreadsheet / Graph Area	Shows plate representations, spreadsheets, or graphs depending on the view selected. A separate item is shown for each feature. **Plate View** – shows color-coded plate representations for each feature. **Spreadsheet View** – shows the actual measured values for each feature. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Wells that have not been scanned show no value. **Graph View** – shows a plot of each feature. If you want, you can view a plot of the features on one graph in the Graph View. See **Plotting the Data on One Graph** later in this chapter.

Multi-Feature Window Toolbar

The toolbar located across the top of the Multi-Feature Window contains the same three buttons used in the Viewer Main Window to open the Multi-Feature Window. Their functionality in the Multi-Feature Window is summarized below.

Image	Toolbar Button Name	What it Does
	Plate View	Places the window in the Plate View. In the Plate View, the results are shown visually using color-coded plate representations. Clicking this toolbar button is equivalent to selecting **View Plates** on the **Plates** menu.
	Spreadsheet View	Places the window in the Spreadsheet View. In the Spreadsheet View, the results are shown using the actual measured values. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Clicking this toolbar button is equivalent to selecting **View Spreadsheets** on the **Spreadsheets** menu.
	Graph View	Places the window in the Graph View. In the Graph View, the results are shown using graphs. Clicking this toolbar button is equivalent to selecting **View Graphs** on the **Graphs** menu.

Changing the View Displayed

The Cellomics™ Data Viewer makes it easy to switch between views while in the Multi-Feature Window. For example, if you are reviewing the data in the Multi-Feature Window using the Plate View, you can easily switch to the Spreadsheet View to display the actual measured values for the wells.

To change the view displayed,

- Click the toolbar button corresponding to your choice of views.
  -or-
  Select **View Plates** from the **Plates** menu, **View Spreadsheets** from the **Spreadsheets** menu, or **View Graphs** from the **Graphs** menu.

Adjusting the Feature Thresholds

The feature list in the Multi-Feature Window shows you the features that you chose to display for the plate that you are viewing. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed. Each of these items is explained briefly next.

Item	Description
Lower Extents	The lower limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Upper Extents	The upper limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Display Min	The value used as the minimum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** later in this chapter.
Display Max	The value used as the maximum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** later in this chapter.
STD Feature	The standard deviation of the feature. If available for the feature, this is measured during the scan.
STE Feature	The standard error of the feature. If available for the feature, this is measured during the scan.
COV Feature	The coefficient of variation of the feature. If available for the feature, this is measured during the scan.

To adjust the feature thresholds,

1) From the **Features** menu, select **Change Thresholds**.

   -or-

   Right-click on the feature list in this same window, then choose **Change Thresholds** from the shortcut menu.

   -or-

   If you are in the Plate View, select **Thresholds** from the **Plates** menu.

The Set Feature Extents dialog box appears as shown in the figure below.

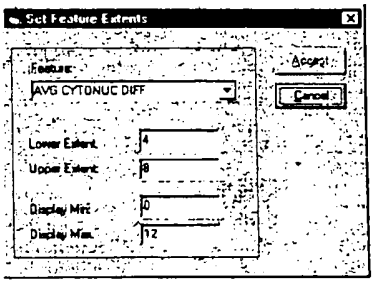

Figure 4.3 Set Feature Extents dialog box.

2) Select the feature that you want to adjust from the **Feature** drop-down list.

3) Change the Lower Extent, Upper Extent, Display Min, or Display Max for that feature as desired.

4) Click the **Accept** button.
   The display in the Multi-Feature Window is updated automatically to reflect the changes that you made. The change applies to all of the plate representations, spreadsheets, or graphs shown in the window.

Working with the Plate View

The Multi-Feature Window provides you with extensive options for both modifying the appearance of the plate representations and obtaining plate representation data in the Plate View.

Modifying the Plate Representation Appearance

Switching Between Normal and Large View

Normally each plate representation shown in the Plate View of the Multi-Feature Window is displayed in normal view, which means that the number of plate representations are arranged and sized to fill in the available space in the plate area. To display an enlarged view of the plate representation, you can switch to large view. Large view fills the plate area with the one plate representation that you selected.

To switch between normal and large view,

- Right-click on the plate representation that you want to display in large view, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** in the shortcut menu to show that you are in large view.
- To switch back to normal view, right-click on the plate representation that is in large view, then choose **Maximize** again.
  The checkmark is now removed.

Changing the Well Shading

By changing the well shading, you can choose to color-code the wells using one of two options: (1) Above, Below, and In Range colors or (2) ten different colors expressed as a percentage of the maximum value called "10 Increments Between Min and Max".

For more information on the color-coding, see **Viewing and Changing the Legend Colors** in the next section.

To change the well shading,

1) From the **Plates** menu, select **Shading**.
2) From the sub-menu, select the type of shading that you want to display.
   The type of shading that you chose applies to all of the plate representations shown in the window. A checkmark is placed next to the option that is currently selected.

Viewing and Changing the Legend Colors

The wells in the plate representations shown in the Multi-Feature Window are color-coded based on your selected shading option. For more information on shading options, see **Changing the Well Shading** earlier in this chapter. If you need a reference for the colors or want to change the colors, the Multi-Feature Window provides you with the options. You can control the legend for each plate representation shown in the window separately.

To view the legend colors,

1) Right-click on the plate representation for which you want to display the legend, then choose **Legend** from the shortcut menu.

The Options dialog box appears as shown in the figure below.

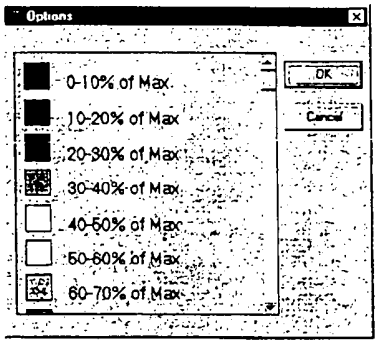

Figure 4.4 Options dialog box.

2) When you are finished viewing the legend, click the **OK** button to close the Options dialog box.

To change the legend colors,

1) Right-click on the plate representation to which you want to make a change, then choose **Legend** from the shortcut menu.

The Options dialog box appears as shown below.

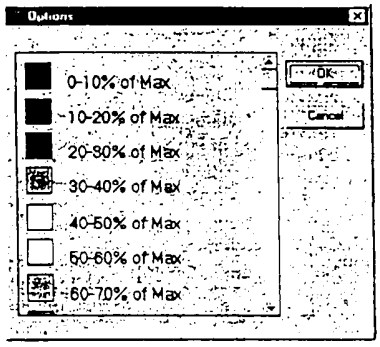

Figure 4.5 Options dialog box.

2) Double-click the color block next to the color that you want to change.

The Color dialog box appears as shown in the figure below.

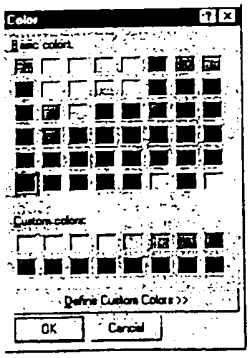

Figure 4.6 Color dialog box.

3) Click the desired color.
If you want to use a color that isn't displayed, click **Define Custom Colors**. Use the slider to choose a color, or type values into the Hue/Sat/Lum or Red/Green/Blue boxes.

4) Click the **OK** button to close the Color dialog box.

5) Click the **OK** button to close the Options dialog box.

Obtaining Plate Representation Output

Printing a Plate Representation

To print a plate representation,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

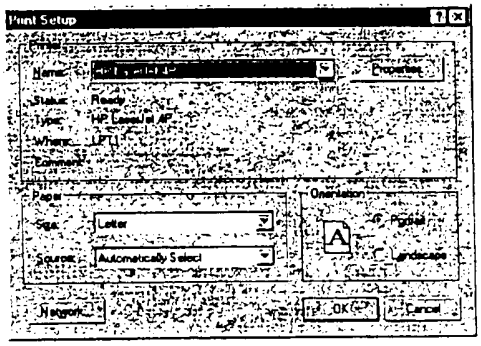

Figure 4.7 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) Right-click on the plate representation that you want to print, then choose **Print** from the shortcut menu.
The plate representation is printed along with the some identifying information.

Working with the Spreadsheet View

The Spreadsheet View in the Multi-Feature Window provides you with extensive options for both modifying the appearance of the spreadsheets and obtaining spreadsheet data.

Modifying the Spreadsheet Appearance

Adjusting the Number of Decimal Places

The Multi-Feature Window allows you to specify the precision of the values shown in the Spreadsheet View.

To adjust the number of decimal places displayed,

1) From the **Spreadsheets** menu, select **Decimal Places**.

The Get Decimal Places dialog box appears as shown in the figure below.

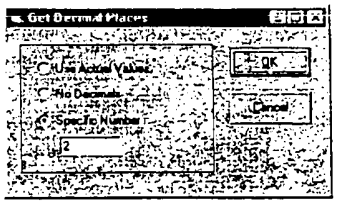

Figure 4.8 Get Decimal Places dialog box.

2) Select the option you want to use. A brief description of each option follows.

Option	Description
Use Actual Values	Shows the values in the available precision saved during the scan.
No Decimals	Shows the values as whole numbers or integers.
Specific Number	Shows the values to the number of decimal places that you enter in the box.

3) Click the **OK** button to close the Get Decimal Places dialog box.
The change that you made applies to all of the spreadsheets in the window.

Switching Between Normal and Large View

Normally each spreadsheet shown in the Spreadsheet View is displayed in normal view, which means that the number of spreadsheets are arranged and sized to fill in the available space in the spreadsheet area. To display an enlarged view of the spreadsheet, you can switch to large view. Large view fills the spreadsheet area with the one spreadsheet that you selected.

To switch between normal and large view,

- Right-click on the spreadsheet that you want to display in large view, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** in the shortcut menu to show that you are in large view.
- To switch back to normal view, right-click on the spreadsheet that is in large view, then choose **Maximize** again.
  The checkmark is now removed.

Displaying the Well Color in the Spreadsheet

The Multi-Feature Window provides you with the Color option, which allows you to choose whether you want to display the well color is associated with each value in the spreadsheet. When the Color option is turned on, the background color of the spreadsheet cell changes to match the color of the well in the plate representation. By default, this option is turned off.

To toggle the color option,

- To turn on the color option, from the **Spreadsheets** menu, select **Color**.
  A checkmark is placed next to **Color** to indicate that this option is turned on.
- To turn the option off, select **Color** from the **Spreadsheets** menu again.
  The checkmark is now removed.

For more information on the colors used, refer to **Viewing and Changing the Legend Colors** in the **Working with the Plate View** section of this chapter.

Obtaining Spreadsheet Output

Printing a Spreadsheet

To print a spreadsheet,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

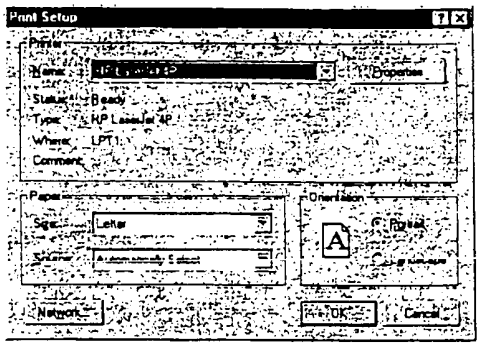

Figure 4.9 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) Right-click on the spreadsheet that you want to print, then choose **Print** from the shortcut menu.

Copying a Spreadsheet to the Windows® Clipboard

An easy way to transfer the values in a spreadsheet to another application is by copying them to the Windows® clipboard, then pasting them into your application. For instance, if you copy a spreadsheet and paste it into Microsoft® Word, the pasted information appears as shown in the figure below.

70.65	58.61	67.20	90.29	80.86	65.26
90.45	65.11	58.90	12.63	66.45	20.45
86.33	18.56	78.32	18.33	66.96	56.20
56.45	90.66	15.09	80.55	33.74	85.23
90.44	66.22	56.88	87.77	65.23	74.30
67.45	90.66	90.88	99.43	88.30	89.10

Figure 4.10 An example of spreadsheet data pasted into an application.

When pasted into an application, the values in the spreadsheet are arranged in rows and columns that are separated by tabs.

To copy a spreadsheet to the Windows® clipboard,

- Right-click on the spreadsheet that you want to copy, then choose **Copy** from the shortcut menu.

Exporting a Spreadsheet

The Multi-Feature Window allows you to export the values in one or more spreadsheets to a Comma Separated Value (.CSV) file. After you do so, you may import the file into any application that supports the .CSV file type, such as Microsoft® Excel. You can export the values either from one spreadsheet or from all of the spreadsheets at one time.

To export the values in one spreadsheet,

1) Right-click on the spreadsheet that you want to export, then choose **Export** from the shortcut menu.

The Export Plate Data dialog box appears as shown in the figure below.

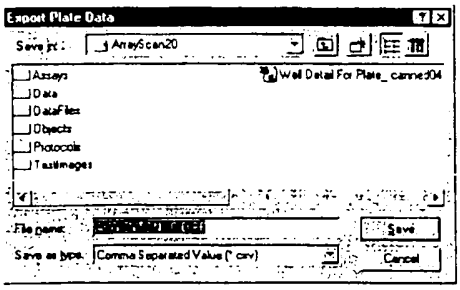

Figure 4.11 Export Plate Data dialog box.

2) From the available folder list, select the path to which you want to save the file.

3) Enter a name for the file in the **File Name** box.
The .CSV file type is selected automatically.

4) Click the **Save** button.

To export all of the spreadsheets shown at one time,

1) From the **Spreadsheets** menu, select **Export All**.

The Export Plate Data dialog box appears as shown in the figure below.

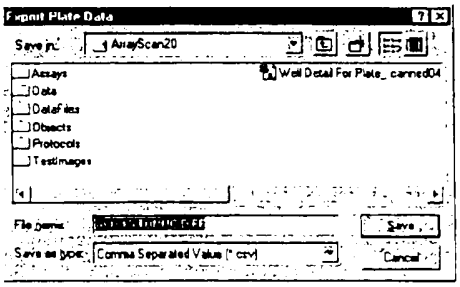

Figure 4.12 Export Plate Data dialog box.

2) From the available folder list, select the path to which you want to save the file.

3) Enter a name for the file in the **File Name** box.
The .CSV file type is selected automatically.

4) Click the **Save** button.
The data in all of the spreadsheets is exported into one .CSV file.

Transferring a Spreadsheet to Excel

Instead of exporting spreadsheet values to a .CSV file, then importing them into Microsoft® Excel, you can immediately transfer the values to an Excel worksheet. Using this option requires that you have Microsoft® Excel 97 installed on the computer.

To transfer the values in a spreadsheet immediately to Excel,

- Right-click on the spreadsheet that you want to transfer, then choose **Transfer to Excel** from the shortcut menu.
A dialog box confirms that this is what you want to do. If you choose "Yes", the Excel application automatically opens and displays the values from the spreadsheet.

To transfer the values in all of the spreadsheets shown immediately to Excel at one time,

- From the **Spreadsheets** menu, select **Transfer All to Excel**.
A dialog box confirms that this is what you want to do. If you choose "Yes", the Excel application automatically opens and displays the values from the spreadsheets.

Working with the Graph View

The Graph View in the Multi-Feature Window provides you with extensive options for both modifying the appearance of the graphs and obtaining graph data.

Modifying the Graph Appearance

Zooming in on a Portion of the Graph

The Multi-Feature Window allows you to zoom in on a portion of the graph to display it in greater detail.

To zoom in on a portion of the graph,

1) Hold down your primary mouse button on a starting point in the graph.

2) Drag the box around the area that you want to zoom in on.

3) Release your mouse button.

Note: If you need to zoom out the graph, you should open a new instance of the Multi-Feature Window.

Changing the Plotting Method

The plotting method for the graphs in the Multi-Feature Window can be changed to one of many different types. Each available plotting method is explained below.

Plotting Method	Description
Points	Shows the data point for each value.
Line	Connects each value with the next and previous value using a straight line.
Bar	Shows a bar from the x-axis up to each value.
Area	Shows the total area below the line that results from connecting each value to the next and previous value using a straight line.
Sticks	Shows a straight line from the x-axis up to each value.
Spline	Connects each value with the next and preceding value using a spline (S-curve).
Points + Best Fit Line	Shows the data points and the best fit straight line calculated from the data points.
Points + Best Fit Curve	Shows the data points and the best fit curve calculated from the data points.
Points + Line	Shows the data points and the straight lines that connect each data point to the adjacent data points.
Points + Spline	Shows the data points and the spline that connects each data point to the adjacent data points.

To change the plotting method,

1) From the **Graphs** menu, select **Plotting Method.**

2) From the sub-menu, select the plotting method that you want use for the graphs.
The plotting method that you choose applies to all of the graphs shown in the window.

Showing and Hiding Grid Lines

The Multi-Feature Window allows you to choose the grid lines that you want to display in the graphs. You can choose to display no grid lines, grid lines coming from the x-axis, grid lines coming from the y-axis, or grid lines coming from both the x- and y-axes. If you choose to display x-axis grid lines, you can specify the interval for the grid lines.

To choose the grid lines that you want to display,

1) From the **Graphs** menu, select **Grid Lines.**

2) From the sub-menu, select the grid lines that you want to display.
The grid line option that you choose applies to all of the graphs shown in the window.

If you choose an option using x-axis grid lines, you can specify the interval by,

1) Select **Grid Lines** from the **Graphs** menu.

2) Select **X Axis Lines Every** from the sub-menu, then choose the interval from the second sub-menu.

Changing the Data Point Size

By default, the Multi-Feature Window uses a small point size to display the data points in the graphs. If you wish, you can change the data point size to very small, medium, or large instead.

To change the data point size,

1) From the **Graphs** menu, select **Point Size**.

2) From the sub-menu, select the data point size that you want to use.
   The data point size that you choose applies to all of the graphs shown in the window.

Moving the Grid from the Back to the Front

By default, the Multi-Feature Window places the grid behind the graph. If you wish, you can move the grid to the front.

Note: The effect of this option is noticeable using certain plotting methods, such as the Bar and Area plotting methods.

To toggle the grid from the back to the front,

- From the **Graphs** menu, select **Grid in Front**.
  A checkmark is placed next to **Grid in Front** to show that the option is turned on. The grid placement option that you choose applies to all of the graphs shown in the window.

- To return the grid to the back, select **Grid in Front** from the **Graphs** menu again.
  The checkmark is now removed.

Marking the Data Points

By default, the Multi-Feature Window marks the data points in the graphs if marking the points is part of the plotting method. If you want data points to be marked all of the time, you can turn on the Mark Data Points option.

To mark data points all of the time,

- From the **Graphs** menu, select **Mark Data Points**.
  A checkmark is placed next to **Mark Data Points** to show that the option is turned on. The option that you choose applies to all of the graphs shown in the window.

- To turn off the Mark Data Points option, select **Mark Data Points** from the **Graphs** menu again.
  The checkmark is now removed.

Showing the Thresholds

By default, the graphs in the Multi-Feature Window do not show the upper or lower thresholds for the displayed feature. By changing the Show Thresholds option, you can display the thresholds. A sample graph with the threshold lines displayed is shown below.

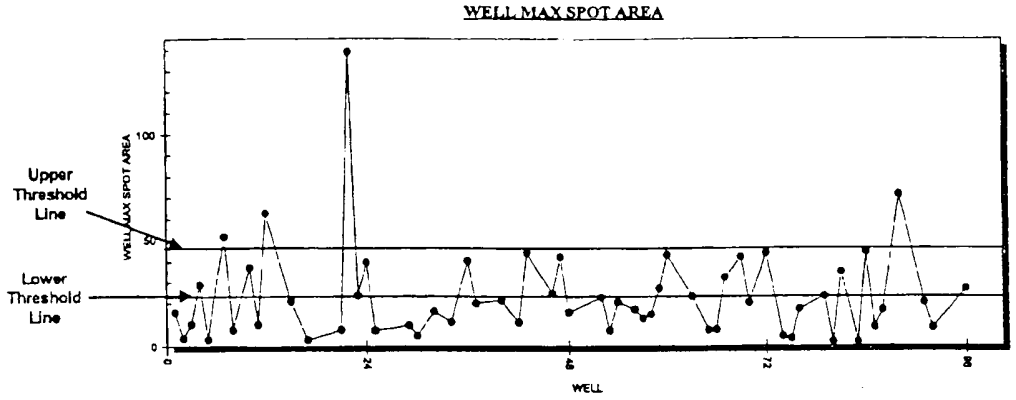

Figure 4.13 A sample graph in the Graph View showing the thresholds.

To show the thresholds for a feature,

- From the **Graphs** menu, select **Show Thresholds**.
  A checkmark is placed next to **Show Thresholds** to show that the option is turned on. Thresholds are displayed in each graph shown in the window.
- To hide the thresholds, select **Show Thresholds** from the **Graphs** menu again.
  The checkmark is now removed.

Showing the Error Bars

By default, the graphs in the Multi-Feature Window do not show error bars for the data points. If you want, you can view the error bars for the data points by turning on the Error Bar option. Error bars can be displayed as standard deviation (STD), standard error (STE), or coefficient of variation (COV). A sample graph displaying the standard deviation for the data points is shown below.

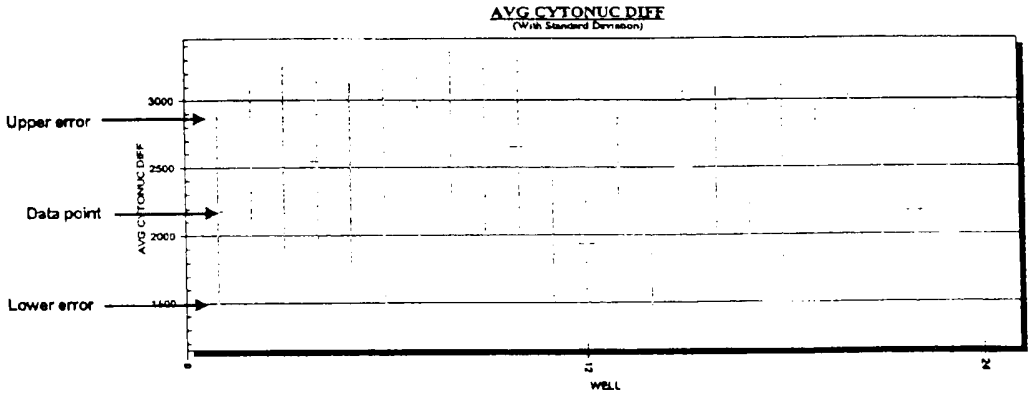

Figure 4.14 A sample graph in the Graph View showing standard deviation.

Note: Error bars can be shown if the standard deviation (STD), standard error (STE), or coefficient of variation (COV) for the feature that you are reviewing was measured during the scan. The feature list shows you if these items were measured. If the item was not measured the STD Feature, STE Feature, and/or COV Feature columns in the feature list will show the words "Not Available" and the error bars option will be grayed out. If these items were measured, the STD Feature, STE Feature, and/or COV Feature columns in the feature list will show the name of the measured feature.

To show the error bars,

1) From the **Graphs** menu, select **Error Bars**.

2) From the sub-menu, select the type of error bars that you want to display.
The error bar option that you choose applies to all of the graphs shown in the window.

Plotting the Data on One Graph

The Multi-Feature Window typically plots each feature in its own individual graph. If you would prefer to display a plot of the features on one graph, you can do so. An example of four cell features plotted on one graph in the Multi-Feature Window is shown in the figure below.

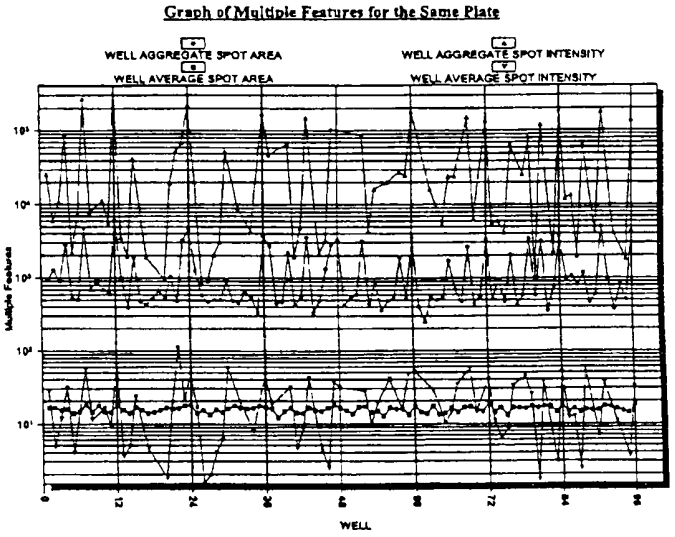

Figure 4.15 Four features are plotted on one graph with the Plot on Single Graph option in the Multi-Feature Window.

To plot the data on one graph,

- From the **Graphs** menu, select **Plot on Single Graph**.
A checkmark is placed next to **Plot on Single Graph** to show that the option is turned on.

- To return the data to individual graphs, select **Plot on One Graph** from the **Graphs** menu again.
The checkmark is now removed.

Switching Between Normal and Large View

Typically each graph shown in the Multi-Feature Window is displayed in normal view, which means that the number of graphs are arranged and sized to fill in the available space in the

graph area. To display an enlarged view of the graph, you can switch to large view. Large view fills the graph area with the one graph that you selected.

To switch between normal and large view,

- Right-click on the graph that you want to display in large view, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.
- To switch back to normal view, right-click on the graph that is in large view, then choose **Maximize** again.
  The checkmark is now removed.

Customizing a Graph

The Multi-Feature Window provides you with a very powerful option. It allows you to fully customize each graph.

To customize a graph,

- Right-click on the graph that you want to customize, then choose **Customize** from the shortcut menu.

The General tab of the Customization dialog box appears as shown in the figure below.

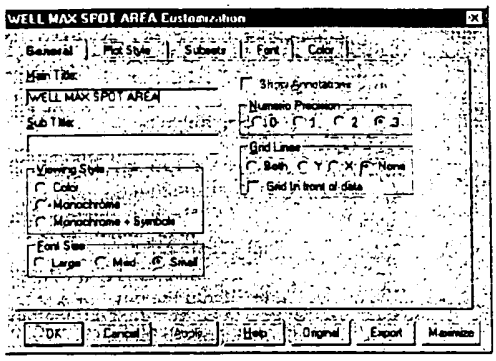

Figure 4.16 General tab of the Customization dialog box.

The options available to you in this dialog box are the same as those provided for customizing the graph in the Well Detail Window. For a comprehensive explanation of these options, see **Customizing the Graph** in Chapter 3, **Reviewing the Well Details of a Plate.**

Obtaining Graph Output

Printing a Graph

To print a graph,

1) If you have not yet done so, select the printer that you want to print to by choosing Select **Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

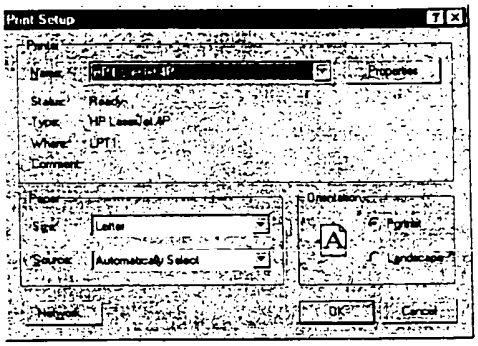

Figure 4.17 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) Right-click on the graph that you want to print, then choose **Print** from the shortcut menu.

Copying a Graph to the Windows® Clipboard

An easy way to transfer a graph to another application is by copying it to the Windows® clipboard, then pasting it into your application.

To copy a graph to the Windows® clipboard,

- Right-click on the graph that you want to copy, then choose **Copy** from the shortcut menu.

Exporting a Graph

The Multi-Feature Window allows you to export a graph either as a Windows® bitmap (.BMP) or a Windows® metafile (.WMF). After you do so, you may import this file into any application that supports these file types, such as Adobe® PhotoShop®. In addition to exporting a graph as an image, you can export the text and data only.

To export a graph,

1) Right-click on the graph that you want to export, then choose **Export** from the shortcut menu.

The Exporting dialog box appears as shown in the figure below.

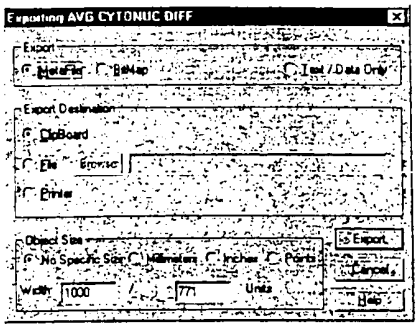

Figure 4.18 Exporting dialog box.

2) Choose the type of export that you want to do.
You can save the graph either as a Windows® metafile (.WMF) or as a Windows® bitmap (.BMP) by selecting either the **Metafile** or **Bitmap** option. If you want to export just the text and data, choose the **Text / Data Only** option.

3) Select the export destination.
Depending on the type of export that you chose in the previous step, you may be able to export the graph to the Windows® clipboard, to a file, or to the printer by selecting the **Clipboard, File**, or **Bitmap** option. Unavailable options are grayed out.

4) If you choose the **File** option in Step 3, click the **Browse** button to show the Save As dialog box shown below. Then, enter a name and location for the file, and click the **OK** button. If you didn't choose the **File** option, skip this step.

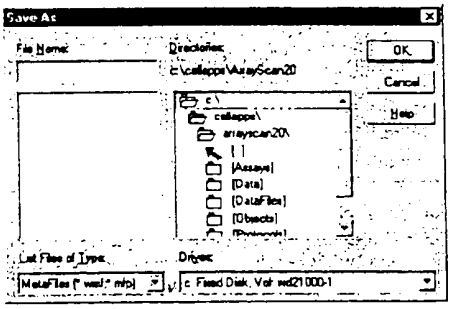

Figure 4.19 Save As dialog box.

5) Select the object size for the exported graph, and enter the dimensions in the **Width** and **Height** boxes.
The options available to you here depend on the type of export that you chose in Step 2 and the export destination that you chose in Step 3. The available options are summarized below.

Export Type	Export Destination	Available Object Size Options
Metafile	Clipboard	No specific size, millimeters, inches, and points
Metafile	File	No specific size, millimeters, inches, and points
Metafile	Printer	Full page, millimeters, inches, and points
Bitmap	Clipboard	Pixels
Bitmap	File	Pixels
Bitmaps	Printer	Not an available combination
Text / Data Only	Clipboard	None
Text / Data Only	File	None
Text / Data Only	Printer	Not an available combination

6) Click the **Export** button, or alternatively, the **Print** button if you chose a destination of "Printer".

7) If you chose an export destination of "Printer", select a printer, then click the **OK** button in the Printing dialog box that appears, as shown below.
If you need to change the printer settings, click the **Setup** button, then adjust the settings.

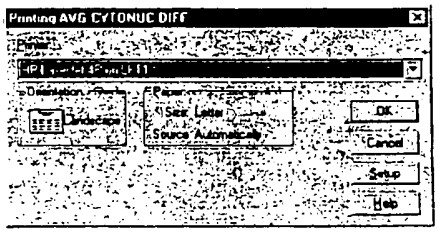

Figure 4.20 Printing As dialog box.

Viewing More Detailed Data

Viewing the Cell Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed cell data. Viewing the cell details is available from many windows in the Cellomics™ Data Viewer, including the Multi-Feature window.

This section explains how to access the cell details from the Multi-Feature Window. For more details on the Cell Detail Window, refer to Chapter 6, **Viewing the Cell Details**.

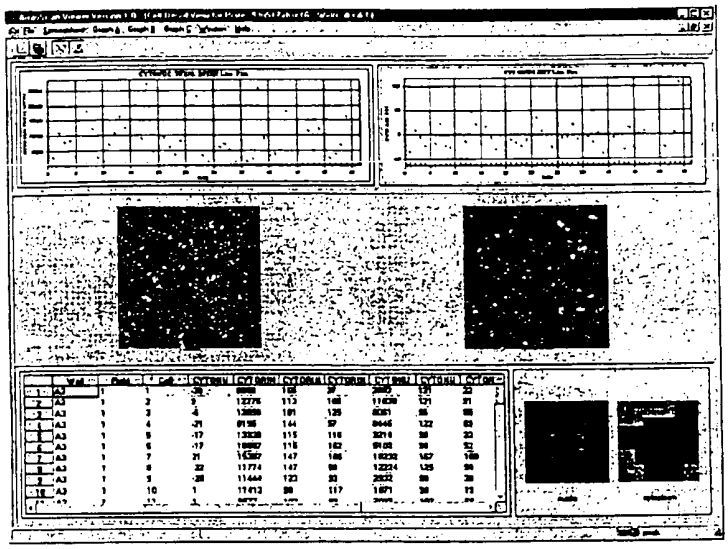

Figure 4.21 The Cell Detail Window.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

Viewing the Cell Details from the Plate View

In the Plate View in the Multi-Feature Window, you can view the cell details of an individual well.

To view the cell details of an individual well,

1) Select the well in the plate representation for which you want to view the cell details by clicking on it.

2) Right-click on the selected well, then choose **Cell Details** from the shortcut menu.

Viewing the Cell Details from the Spreadsheet View

In the Spreadsheet View in the Multi-Feature Window, you can view the cell details of an individual well or a group of wells.

To view the cell details of an individual well,

1) Select the well in the spreadsheet for which you want to view the cell details by clicking on it.

2) Right-click on the selected well, then choose **Cell Details** from the shortcut menu.

To view the cell details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet for which you want to view the cell details.
   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.
   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.
   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Right-click on the selection that you made in the spreadsheet, then choose **Cell Details** from the shortcut menu.

Viewing the Cell Details from the Graph View

In the Graph View in the Multi-Feature Window, you can view the cell details of an individual well.

To view the cell details of an individual well,

1) Click on the data point representing the well for which you want to view the cell details.

2) Right-click on the selected data point, then choose **Cell Details** from the shortcut menu.

Viewing the Field Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed field data. Viewing the field details is available from many windows in the Cellomics™ Data Viewer, including the Multi-Feature window.

This section explains how to access the field details from the Multi-Feature Window. For more details on the Field Detail Window, refer to Chapter 7, **Viewing the Field Details.**

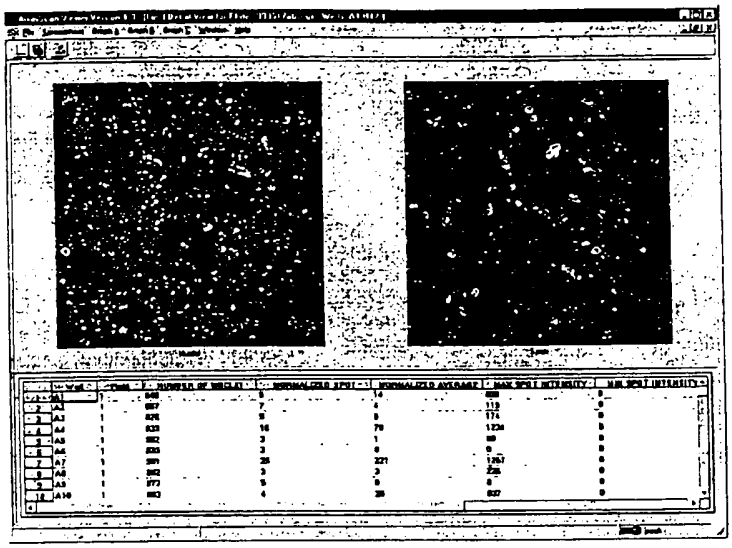

Figure 4.22 The Field Detail Window.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

Viewing the Field Details from the Plate View

In the Plate View in the Multi-Feature Window, you can view the field details of an individual well.

To view the field details of an individual well,

1) Select the well in the plate representation for which you want to view the field details by clicking on it.

2) Right-click on the selected well, then choose **Field Details** from the shortcut menu.

Viewing the Field Details from the Spreadsheet View

In the Spreadsheet View in the Multi-Feature Window, you can view the field details of an individual well or a group of wells.

To view the field details of an individual well,

1) Select the well in the spreadsheet for which you want to view the field details by clicking on it.

2) Right-click on the selected well, then choose **Field Details** from the shortcut menu.

To view the field details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet for which you want to view the field details.

   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.

   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.

   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Right-click on the selection that you made in the spreadsheet, then choose **Field Details** from the shortcut menu.

Viewing the Field Details from the Graph View

In the Graph View in the Multi-Feature Window, you can view the field details of an individual well.

To view the field details of an individual well,

1) Click on the data point representing the well for which you want to view the field details.

2) Right-click on the selected data point, then choose **Field Details** from the shortcut menu.

FREQUENTLY ASKED QUESTIONS

What does the Multi-Feature Window show me?
The Multi-Feature Window allows you to compare multiple features of a plate. It shows the summarized well results for the plate in the Plate View, the Graph View, or the Spreadsheet View.

What does the Plate View show me?
The Plate View shows the well results in color-coded plate representations. The color-coding represents the well status according to a legend.

What does the Spreadsheet View show me?
The Spreadsheet View shows the actual measured values for each well. The rows and columns of the spreadsheet correspond to the rows and columns of the plate.

What does the Graph View show me?
The Graph View shows you how the well results relate to each other in the form of a graph. You can customize each graph extensively to plot exactly what you need to.

How do I open the Multi-Feature Window?
Starting at the Viewer Main Window, select the plate you want to display in the Multi-Feature Window, then click on one of the **Open in Multi-Feature** toolbar buttons or choose one of the **Open Multi-Feature** commands from the **File** Menu or shortcut menu.

I would like to compare multiple features for two plates. How can I do this?
Display the features that you want to compare for one of the plates in a Multi-Feature Window. Display the features that you want to compare for the other plate in another Multi-Feature Window. After you have both Multi-Feature Windows open, tile the windows by choosing **Tile** on the **Window** menu.

I'm preparing a document. Can I copy a plate representation, graph, or spreadsheet into Microsoft® Word?
You can copy either a graph or a spreadsheet, but not a plate representation. To copy either one to the Windows® clipboard, right-click on the item that you want to copy, then choose **Copy** from the shortcut menu. Paste the item into Word using a normal pasting operation.

Can I transfer the values in a spreadsheet to Microsoft® Excel?
Yes, you can do this one of two ways: (1) You can either export the values to a .CSV file, then import the .CSV file into Excel or (2) You can open Excel and display the values directly. In addition, you can perform either of these two operations on one spreadsheet or for all of the spreadsheets shown in the window at one time. See **Exporting a Spreadsheet**and **Transferring a Spreadsheet to Excel** in this chapter for more details.

Are there any other ways for me to get data out of the Multi-Feature Window?
You can print a plate representation, graph, or spreadsheet by right-clicking on the item, then choosing **Print** from the shortcut menu. You can also export a graph as a Windows® bitmap, as a Windows® metafile, or as text / data only. See **Exporting a Graph**in this chapter for more information.

Chapter
5

Reviewing a Feature Across Several Plates

The Cellomics™ Data Viewer allows you to compare a measured feature across several plates. This type of analysis is done using the Multi-Plate Window. Once in the Multi-Plate Window, you can choose to review the data using one of three views:

- Plate View – displays the data in color-coded plate representations showing the status of the wells
- Spreadsheet View – displays the data in spreadsheets by showing the actual measured values for each well
- Graph View – displays the data in graphs showing how the wells relate to one another

This chapter explains the extensive options built into the Multi-Plate Window of the Cellomics™ Data Viewer.

Opening the Multi-Plate Window

To open the Multi-Plate Window,

1) From the Viewer Main Window, select up to nine plates that you want to compare.
To select a group of continuous plates: Click on the first plate that you want to select. While holding down the Shift key, click on the last plate that you want to select. Release the Shift key. All of the plates in between these two plates will be selected.
To select a group of non-continuous plates: Click on one of the plates that you want to select. While holding down the Ctrl key, click on all of the other plates that you want to select. Release the Ctrl key. All of the plates that you clicked on will be selected.

   For details on how to find plates, refer to **Quick Tour 1 – Finding Plates**, in Chapter 2 of this manual.

2) Do one of the following:

To open the selected plates in the Plate View:
Select **Open Multi-Plate in Plate View** from the **File** menu.
-or-
Click the **Open Multi-Plate in Plate View** button located on the toolbar.
-or-
Right-click on one of the plates that you selected, then choose **Open Multi-Plate in Plate View** from the shortcut menu.

To open the selected plates in the Spreadsheet View:
Select **Open Multi-Plate in Spreadsheet View** from the **File** menu.
-or-
Click the **Open Multi-Plate in Spreadsheet View** button located on the toolbar.
-or-
Right-click on one of the plates that you selected, then choose **Open Multi-Plate in Spreadsheet View** from the shortcut menu.

To open the plates in the Graph View:
Select **Open Multi-Plate in Graph View** from the **File** menu.
-or-
Click the **Open Multi-Plate in Graph View** button located on the toolbar.
-or-
Right-click on one of the plates that you selected, then choose **Open Multi-Plate in Graph View** from the shortcut menu.

Note: Once you open any of the Multi-Plate views, you can easily switch to another view.

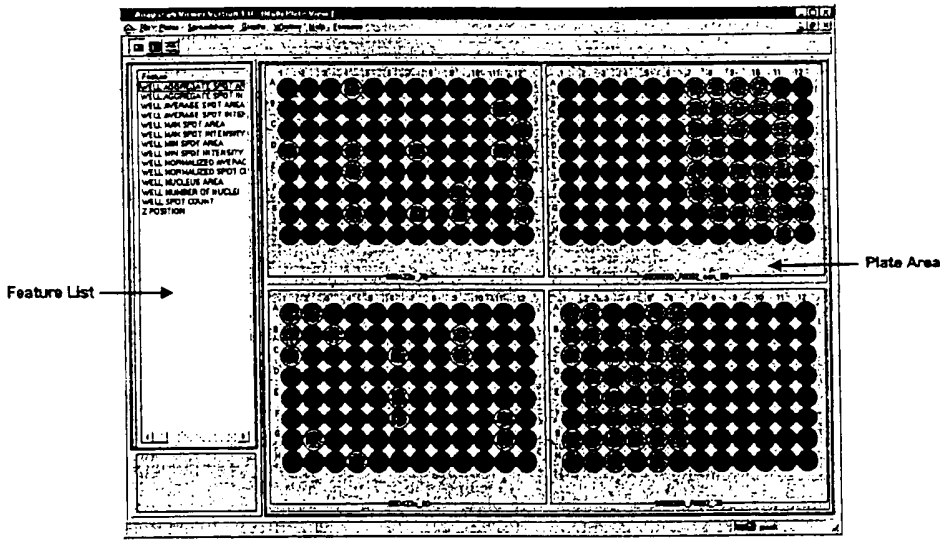

Figure 5.1 Each section of the Multi-Plate Window shown in the Plate View (96-well format) is labeled in this figure. This window allows you to compare a feature across several plates.

Multi-Plate Window Sections

A brief description of each section of the Multi-Plate Window follows.

Section	Description
Feature List	Provides a list of the features that are common to the plates that you selected; thus, you can compare the features that the selected plates have in common. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed.
Plate / Spreadsheet / Graph Area	Shows plate representations, spreadsheets, or graphs depending on the view selected. A separate item is shown for each plate. **Plate View** – shows color-coded plate representations for the selected plates. **Spreadsheet View** – shows the actual measured values for the selected plates. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Wells that have not been scanned show no value. **Graph View** – shows plots of the selected plates.

Multi-Plate Window Toolbar

The toolbar located across the top of the Multi-Plate Window contains three buttons that allow you to Switch between views. Each button is explained below.

Image	Toolbar Button Name	What It Does
	Plate View	Places the window in the Plate View. In the Plate View, the results are shown visually using color-coded plate representations. Clicking this toolbar button is equivalent to selecting **View Plates** on the **Plates** menu.
	Spreadsheet View	Places the window in the Spreadsheet View. In the Spreadsheet View, the results are shown using the actual measured values. The rows and columns in the spreadsheet correspond to the rows and columns in the plate. Clicking this toolbar button is equivalent to selecting **View Spreadsheets** on the **Spreadsheets** menu.
	Graph View	Places the window in the Graph View. In the Graph View, the results are shown using graphs. Clicking this toolbar button is equivalent to selecting **View Graphs** on the **Graphs** menu.

Choosing the Feature Displayed

The feature list in the Multi-Plate Window shows you the features that are common to the plates that you selected. When the window opens, data for the first feature in the feature list is displayed.

To change the feature displayed in the Multi-Plate Window,

- Double-click on the feature in the feature list that you want to view.

Changing the View Displayed

The Cellomics™ Data Viewer makes it easy to switch between views while in the Multi-Plate Window. For example, if you are reviewing the data in the Plate View, you can easily switch to the Spreadsheet View to view the actual measured values for the wells.

To change the view displayed,

- Click the toolbar button corresponding to your choice of views.

  -or-

  Select **View Plates** from the **Plates** menu, **View Spreadsheets** from the **Spreadsheets** menu, or **View Graphs** from the **Graphs** menu.

Adjusting the Feature Thresholds

The feature list in the Multi-Plate Window shows the common features in the plates that you chose to compare. For each feature, the Lower Extents, Upper Extents, Display Min, Display Max, STD Feature, STE Feature, and COV Feature are listed. Each of these items is explained briefly below.

Item	Description
Lower Extents	The lower limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Upper Extents	The upper limit for the feature. The value shown originally is the value saved in the protocol and used during the scan.
Display Min	The value used as the minimum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** in Chapter 4.
Display Max	The value used as the maximum when calculating the well status using the 10 Increments Between Min and Max option. For more information on well shading options, see **Changing the Well Shading** in Chapter 4.
STD Feature	The standard deviation of the feature. If available for the feature, this is measured during the scan.
STE Feature	The standard error of the feature. If available for the feature, this is measured during the scan.
COV Feature	The coefficient of variation of the feature. If available for the feature, this is measured during the scan.

To adjust the feature thresholds,

1) From the **Features** menu, select **Change Thresholds**.

   -or-

   Right-click on the feature list, then choose **Change Thresholds** from the shortcut menu.

   -or-

   If you are in Plate View in the Multi-Plate Window, select **Thresholds** from the **Plates** menu.

The Set Feature Extents dialog box appears as shown in the figure below.

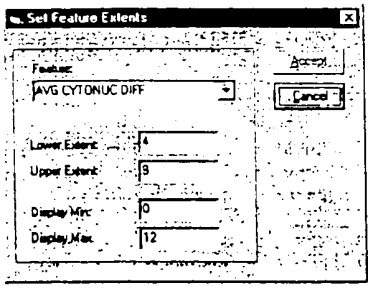

Figure 5.2 Set Feature Extents dialog box.

2) Select the feature that you want to adjust from the **Feature** drop-down list.

3) Change the Lower Extent, Upper Extent, Display Min, or Display Max for that feature as desired.

4) Click the **Accept** button.
The display in the Multi-Plate Window is updated automatically to reflect the changes that you made. The change applies to all of the plate representations, spreadsheets, or graphs shown in the window.

Working with the Plate View

The options available to you in the Plate View in the Multi-Plate Window are the same as the options available to you in the Plate View of the Multi-Feature Window.

For detailed information on these options, refer to **Working with the Plate View** in Chapter 4, **Reviewing Multiple Features of a Plate**. The available options in the Plate View and the page number references are listed below.

Option	Chapter 4 Page Number
Switching Between Normal and Large View	64
Changing the Well Shading	64
Viewing and Changing the Legend Colors	65
Printing a Plate Representation	66

Working with the Spreadsheet View

The options available to you in the Spreadsheet View in the Multi-Plate Window are the same as the options available to you in the Spreadsheet View in the Multi-Feature Window.

For detailed information on these options, refer to **Working with the Spreadsheet View** in Chapter 4, **Reviewing Multiple Features of a Plate**. The available options in the Spreadsheet View and the page number references are listed below.

Option	Chapter 4 Page Number
Adjusting the Number of Decimal Places	67
Switching Between Normal and Large View	68
Displaying the Well Color in the Spreadsheet	68
Printing a Spreadsheet	69
Copying a Spreadsheet to the Windows® Clipboard	69
Exporting a Spreadsheet	70
Transferring a Spreadsheet to Excel	71

Working with the Graph View

The options available to you in the Graph View in the Multi-Plate Window are the same as the options available to you in the Graph View in the Multi-Feature Window.

For detailed information on these options, refer to **Working with the Graph View** in Chapter 4, **Reviewing Multiple Features of a Plate**. The available options in the Graph View and the page number references are listed below.

Option	Chapter 4 Page Number
Zooming in on a Portion of the Graph	71
Changing the Plotting Method	71
Showing and Hiding Grid Lines	72
Changing the Data Point Size	73
Moving the Grid from the Back to the Front	73
Marking the Data Points	73
Showing the Thresholds	74
Showing the Error Bars	74
Plotting the Data on One Graph	75
Switching Between Normal and Large View	75
Customizing a Graph	76
Printing a Graph	77
Copying a Graph to the Windows® Clipboard	77
Exporting a Graph	78

Viewing More Detailed Data

Viewing the Cell Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed cell data. Viewing the cell details is available from many windows in the Cellomics™ Data Viewer, including the Multi-Plate window.

This section explains how to access the cell details from the Multi-Plate Window. For more details on the Cell Detail Window, refer to Chapter 6, **Viewing the Cell Details**.

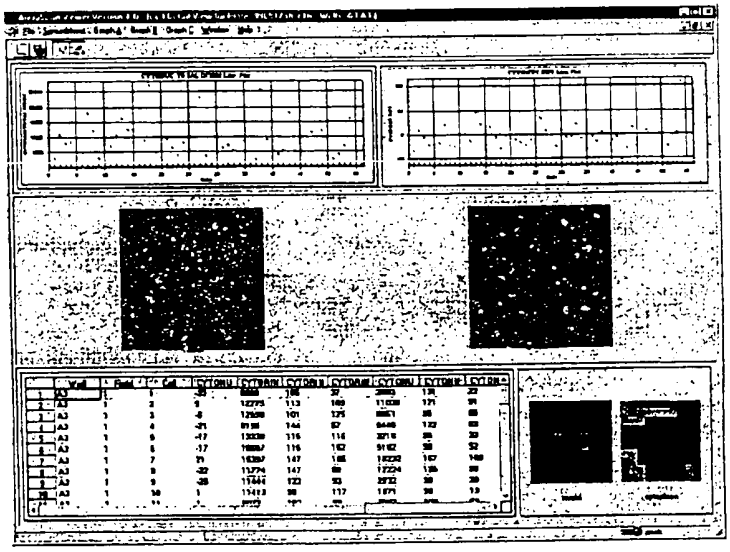

Figure 5.3 The Cell Detail Window.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

Viewing the Cell Details from the Plate View

In Plate View in the Multi-Plate Window, you can view the cell details of an individual well.

To view the cell details of an individual well,

1) Select the well in the plate representation for which you want to view the cell details by clicking on it.

2) Right-click on the selected well, then choose **Cell Details** from the shortcut menu.

Viewing the Cell Details from the Spreadsheet View

In the Spreadsheet View in the Multi-Plate Window, you can view the cell details of an individual well or a group of wells.

To view the cell details of an individual well,

1) Select the well in the spreadsheet for which you want to view the cell details by clicking on it.

2) Right-click on the selected well, then choose **Cell Details** from the shortcut menu.

To view the cell details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet for which you want to view the cell details.
   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.
   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.
   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Right-click on the selection that you made in the spreadsheet, then choose **Cell Details** from the shortcut menu.

Viewing the Cell Details from the Graph View

In the Graph View in the Multi-Plate Window, you can view the cell details of an individual well.

To view the cell details of an individual well,

1) Click on the data point representing the well for which you want to view the cell details.

2) Right-click on the selected data point, then choose **Cell Details** from the shortcut menu.

Viewing the Field Details

While the Cellomics™ Data Viewer typically shows you the summarized results for each well in the plate, it gives you the ability to drill down to display the detailed field data. Viewing the field details is available from many windows in the Cellomics™ Data Viewer, including the Multi-Plate window.

This section explains how to access the field details from the Multi-Plate Window. For more details on the Field Detail Window, refer to Chapter 7, **Viewing the Field Details**.

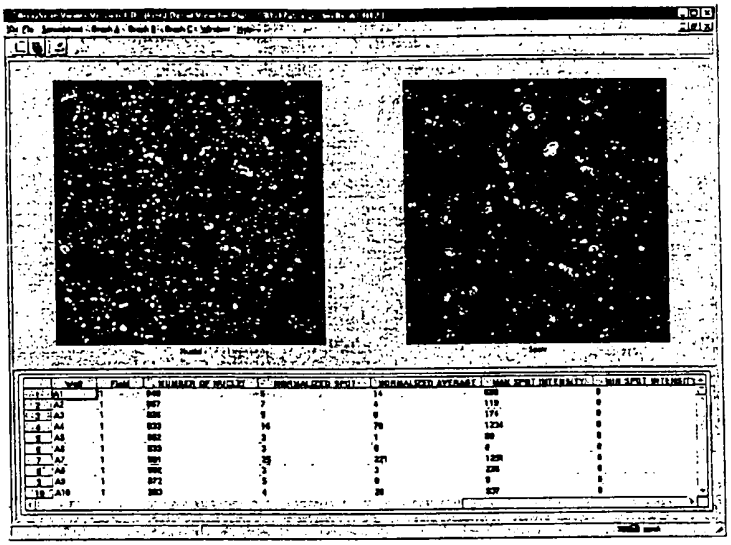

Figure 5.4 The Field Detail Window.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

Viewing the Field Details from the Plate View

In the Plate View of the Multi-Plate Window, you can view the field details of an individual well.

To view the field details of an individual well,

1) Select the well in the plate representation for which you want to view the field details by clicking on it.

2) Right-click on the selected well, then choose **Field Details** from the shortcut menu.

Viewing the Field Details from the Spreadsheet View

In the Spreadsheet View in the Multi-Plate Window, you can view the field details of an individual well or a group of wells.

To view the field details of an individual well,

1) Select the well in the spreadsheet for which you want to view the field details by clicking on it.

2) Right-click on the selected well, then choose **Field Details** from the shortcut menu.

To view the field details of a group of wells,

1) Select the rows, columns, or wells in the spreadsheet for which you want to view the field details.
   To select one row or column in the spreadsheet: Click on the header for the row or column that you want to select.
   To select continuous rows or columns in the spreadsheet: Click on the header for the first row or column that you want to select. Hold down the Shift key, then click on the header for the last row or column that you want to select. Release the Shift key. All of the rows or columns in between these two points will be selected.
   To select contiguous wells in the spreadsheet: Click on the starting (upper-left) well that you want to select. Hold down the Shift key, then click on the ending (lower-right) well that you want to select. Release the Shift key. All of the wells between these two points will be selected.

2) Right-click on the selection that you made in the spreadsheet, then choose **Field Details** from the shortcut menu.

Viewing the Field Details from the Graph View

In the Graph View in the Multi-Plate Window, you can view the field details of an individual well.

To view the field details of an individual well,

1) Click on the data point representing the well for which you want to view the field details.

2) Right-click on the selected data point, then choose **Field Details** from the shortcut menu.

FREQUENTLY ASKED QUESTIONS

What does the Multi-Plate Window show me?
The Multi-Plate Window allows you to compare a feature across multiple plates, up to a maximum of nine. It shows the summarized well results for the plates in the Plate View, the Graph View, or the Spreadsheet View.

What does the Plate View show me?
The Plate View shows the well results in color-coded plate representations. The color-coding represents the well status according to a legend.

What does the Spreadsheet View show me?
The Spreadsheet View shows the actual measured values for each well. The rows and columns of the spreadsheet correspond to the rows and columns of the plate.

What does the Graph View show me?
The Graph View shows you how the well results relate to each other in the form of a graph. You can customize each graph extensively to plot exactly what you need to.

How do I open the Multi-Plate Window?
Starting at the Viewer Main Window, select the plates that you want to compare in the Multi-Plate Window, then click on one of the **Open in Multi-Plate** toolbar buttons or choose one of the **Open Multi-Plate** commands from the **File** Menu or shortcut menu.

I would like to compare two features for a group of plates. How can I do this?
Display one of the features in a Multi-Plate Window showing the plates that you want to compare. Display the other feature in a Multi-Plate Window also showing the plates that you want to compare. After you have both Multi-Plate Windows open, tile the windows by choosing **Tile** on the **Window** menu.

I'm preparing a document. Can I copy a plate representation, graph, or spreadsheet into Microsoft® Word?
You can copy either a graph or a spreadsheet, but not a plate representation. To copy either one to the Windows® clipboard, right-click on the item that you want to copy, then choose **Copy** from the shortcut menu. Paste the item into Word using a normal pasting operation.

Can I transfer the values in a spreadsheet to Microsoft® Excel?
Yes, you can do this one of two ways: (1) You can either export the values to a .CSV file, then import the .CSV file into Excel or (2) You can open Excel and display the values directly. In addition, you can perform either of these two operations on one spreadsheet or for all of the spreadsheets shown in the window at one time. **Exporting a Spreadsheet** and **Transferring a Spreadsheet to Excel** in Chapter 4, **Reviewing Multiple Features of a Plate** for more details.

Are there any other ways for me to get data out of the Multi-Feature Window?
You can print a plate representation, graph, or spreadsheet by right-clicking on the item, then choosing **Print** from the shortcut menu. You can also export a graph as a Windows® bitmap, as a Windows® metafile, or as text / data only. See **Exporting a Graph** in Chapter 4, **Reviewing Multiple Features of a Plate** for more information.

Chapter
6

Viewing the Cell Details

The Cellomics™ Data Viewer allows you drill down when you are reviewing the summarized results for the wells to display the cell details. This type of analysis is done using the Cell Detail Window.

This chapter explains the extensive options built into the Cell Detail Window of the Cellomics™ Data Viewer.

Note: Not all assays record the data necessary to display the cell details. If the assay used to collect the data does not provide this level of detail, you will not be able to use the Cell Detail Window and its functionality will be unavailable.

Opening the Cell Detail Window

The Cell Detail Window is shown in the figure below.

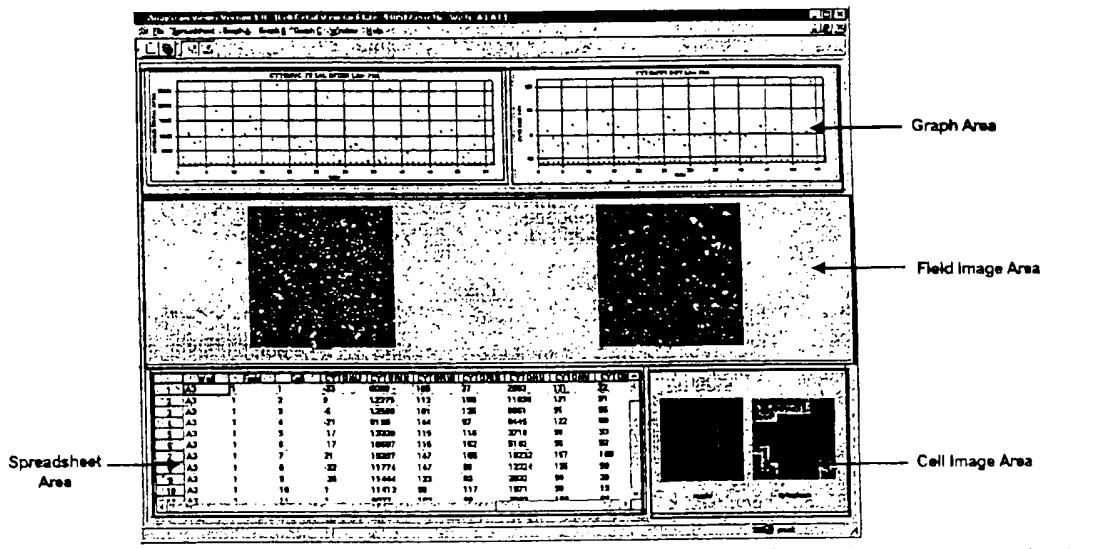

Figure 6.1 Each section of the Cell Detail Window is labeled in this figure. This window allows you to review the data collected on a cell level.

The Cell Detail Window can be opened from several of the other windows in the Cellomics™ Data Viewer, including the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window. For instructions on opening the Cell Detail Window from these windows, refer to the following sections in this manual.

From Window	Chapter Number and Section	Page Number
Well Detail	Chapter 3, Viewing the Cell Details	55
Multi-Feature	Chapter 4, Viewing the Cell Details	80
Multi-Plate	Chapter 5, Viewing the Cell Details	91

Cell Detail Window Sections

A brief description of each section of the Cell Detail Window follows.

Section	Description
Graph Area	Shows a maximum of three graphs visually showing the relationships in the data. Each graph can be customized. For more information, see **Working with the Graph Options** later in this chapter.
Field Image Area	Shows the grayscale field images for the selected spreadsheet row or graph data point, as taken with each channel in the assay. The field images provide you with many display and output options, see **Working with the Field Image Options** later in this chapter.
Spreadsheet Area	Shows the actual values collected during the scan. The spreadsheet gives you many display and output options, see **Working with the Spreadsheet Options** later in this chapter.
Cell Image Area	Shows the grayscale images for the selected cell in the field, as taken with each channel in the assay. The cell images provide you with many display and output options, see **Working with the Cell Image Options** later in this chapter.

These sections work together to help you review the data on cell level, as follows:

- Clicking on a data point in the graph displays the corresponding field and cell images, places a box around the cell in the field images, and highlights the row corresponding to the cell in the spreadsheet.
- Clicking in one of the field images shows the closest cell image and highlights the cell in the graphs and spreadsheet.
- Clicking on a row in the spreadsheet shows the corresponding field and cell images, highlights the data point in the graphs, and places a box around the cell in the field images.

Cell Detail Window Toolbar

The toolbar located across the top of the Cell Detail Window contain four buttons, each of which is explained below.

Image	Toolbar Button Name	What it Does
	View Graphs	Toggles whether the graphs are shown in this window. See **Hiding and Unhiding a Graph** later in this chapter.
	View Full Images	Toggles whether the field images are shown in this window. See **Hiding and Unhiding a Field Image** later in this chapter.
	Number Cells	Toggles whether the cells in the field images are numbered. For more information, see **Numbering the Cells** later in this chapter.
	Show Overlays	Toggles whether the color overlays are shown in the field images. For more information, see **Showing the Color Overlays** later in this chapter.

Configuring the Cell Detail Window

The Cell Detail Window can show you four types of information: graphs of the cell data, full field images as taken during the scan, the actual measured values in the spreadsheet, and images of the individual cells. You may not want to display all of this information in all cases. For this reason, the Cell Detail Window allows you to configure what is shown.

To configure the Cell Detail Window,

1) From the **Window** menu, select **Configure**.

The Configure Cell Detail Objects dialog box appears as shown in the figure below.

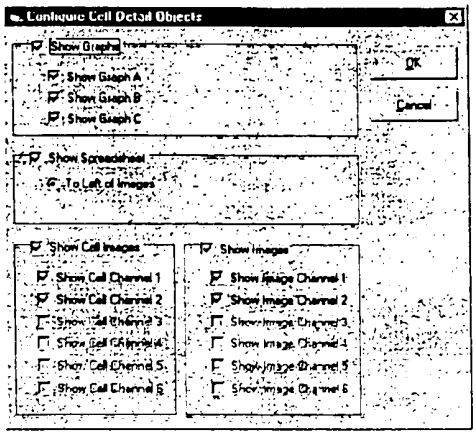

Figure 6.2 Configure Cell Detail Objects dialog box.

2) Select the options for the items that you want to view in the Cell Detail Window.

3) Click the **OK** button to close the dialog box.

Working with the Graph Options

Modifying the Graph Appearance

Zooming in on a Portion of the Graph

The Cell Detail Window allows you to zoom in on a portion of the graph to display it in greater detail.

To zoom in on a portion of the graph,

1) Hold down your primary mouse button on a starting point in the graph.
2) Drag the box around the area that you want to zoom in on.
3) Release your mouse button.

Note: If you need to zoom out the graph, you should open a new instance of the Cell Detail Window.

Creating a New Graph

The Cell Detail Window allows you to choose the graphs that you display in the window.

To create a new graph,

1) Select **New** from the **Graph A**, **Graph B**, or **Graph C** menu, depending on which graph that you want to change into a new graph.
   -or-
   Right-click on the graph that you want to change into a new graph, then choose **New** from the shortcut menu.

If the graph that you want to change isn't shown or the **New** command is grayed out, you need to unhide the graph. See **Hiding and Unhiding a Graph** later in this chapter.

The Create Graph dialog box, as shown below, appears.

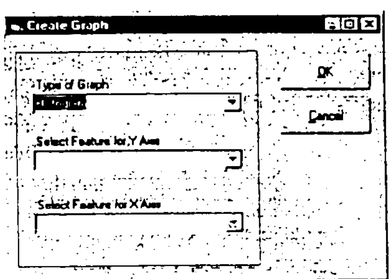

Figure 6.3 Create Graph dialog box.

2) Select the type of graph that you want to create.
   You can choose to plot a histogram, scatter plot, or line graph.

3) Select the feature to plot along the y-axis.
A list of the features measured in the plate appears in this list.

4) Select the feature to plot along the x-axis.
This option is available with the scatter plot type. If it is available, a list of the features measured in the plate appears here.

5) Click the **OK** button.

Changing the Plotting Method

The plotting method for each graph in the Cell Detail Window can be changed to one of many different types. Each available plotting method is explained below.

Plotting Method	Description
Points	Shows the data point for each value.
Line	Connects each value with the next and previous value using a straight line.
Bar	Shows a bar from the x-axis up to each value.
Area	Shows the total area below the line that results from connecting each value to the next and previous value using a straight line.
Sticks	Shows a straight line from the x-axis up to each value.
Spline	Connects each value with the next and preceding value using a spline (S-curve).
Points + Best Fit Line	Shows the data points and the best fit straight line calculated from the data points.
Points + Best Fit Curve	Shows the data points and the best fit curve calculated from the data points.
Points + Line	Shows the data points and the straight lines that connect each data point to the adjacent data points.
Points + Spline	Shows the data points and the spline that connects each data point to the adjacent data points.

To change the plotting method,

1) From the **Graph A**, **Graph B**, or **Graph C** menu, select **Plotting Method**.
-or-
Right-click on the graph that you want to change, then choose **Plotting Method** from the shortcut menu.

2) From the sub-menu, select the plotting method that you want to use for the graph.

Showing and Hiding Grid Lines

The Cell Detail Window allows you to choose the grid lines that you want to display in each graph. You can choose to display no grid lines, grid lines coming from the x-axis, grid lines coming from the y-axis, or grid lines coming from both the x- and y-axes.

To choose the grid lines you want to display,

1) From the **Graph A**, **Graph B**, or **Graph C** menu, select **Grid Lines**.
-or-
Right-click on the graph that you want to change, then choose **Grid Lines** from the shortcut menu.

2) From the sub-menu, select the grid lines that you want to display.

Changing the Data Point Size

By default, the Cell Detail Window uses a small point size to display the data points in each graph. If you wish, you can change the data point size to very small, medium, or large instead.

To change the data point size,

1) From the **Graph A**, **Graph B**, or **Graph C** menu, select **Point Size**.
   -or-
   Right-click on the graph that you want to change, then choose **Point Size** from the shortcut menu.

2) From the sub-menu, select the data point size that you want to use.

Moving the Grid from the Back to the Front

By default, the Cell Detail Window places the grid behind the graph. If you wish, you can move the grid to the front.

Note: The effect of this option is noticeable using certain plotting methods, such as the Bar and Area plotting methods.

To toggle the grid from the back to the front,

- From the **Graph A**, **Graph B**, or **Graph C** menu, select **Grid in Front**.
  -or-
  Right-click on the graph that you want to change, then choose **Grid in Front** from the shortcut menu.
  A checkmark is placed next to **Grid in Front** to show that the option is turned on.

- To return the grid to the back, repeat the preceding procedure.
  The checkmark is now removed.

Marking the Data Points

By default, the Cell Detail Window marks the data points in a graph if marking the points is part of the plotting method. If you want the data points to be marked in a graph all of the time, you can turn on the Mark Data Points option.

To mark data points all of the time,

- From the **Graph A**, **Graph B**, or **Graph C** menu, select **Mark Data Points**.
  -or-
  Right-click on the graph that you want to change, then choose **Mark Data Points** from the shortcut menu.
  A checkmark is placed next to **Mark Data Points** to show that the option is turned on.

- To turn off the Mark Data Points option, repeat the preceding procedure.
  The checkmark is now removed.

Switching Between Normal and Large View

Normally each graph shown in the Cell Detail Window is displayed in normal view, which means that it is sized to fit within the designated graph area. To make a graph fill the entire window area, you can switch to large view.

To switch between normal and large view,

- From the **Graph A**, **Graph B**, or **Graph C** menu, select **Maximize**.
  -or-
  Right-click on the graph that you want to change, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.

- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Hiding and Unhiding a Graph

As mentioned previously, you can display a maximum of three graphs in the graph area of the Cell Detail Window. If you choose not to display a particular graph, you can hide it from view.

To hide a single graph,

- Select **Hide** from the **Graph A**, **Graph B**, or **Graph C** menu, depending on which graph that you want to hide.
  -or-
  Right-click on the graph that you want to hide, then choose **Hide** from the shortcut menu.
  A checkmark is placed next to **Hide** to show that the graph is hidden from view.

To unhide the single graph again,

- Select **Hide** from the **Graph A**, **Graph B**, or **Graph C** menu, depending on which graph is hidden.
  The checkmark is now removed.

To hide the graphs that are shown,

- Click the **View Graphs** toolbar button.
  -or-
  Choose **Configure** on the **Window** menu, uncheck the Show Graphs option, then click the **OK** button.
  A checkmark is placed next to **Hide** in the **Graph A**, **Graph B**, and **Graph C** menus to show that the graphs are hidden from view.

To unhide hidden graphs,

- Click the **View Graphs** toolbar button.
  -or-
  Choose **Configure** on the **Window** menu, check the Show Graphs option, then click the **OK** button.

Customizing a Graph

The Cell Detail Window provides you with very powerful option. It allows you to fully customize each graph. While the most common graph customization options are incorporated into the three Graph menus, many more options are available here.

To customize the graph,

- From the **Graph A**, **Graph B**, or **Graph C** menu, select **Customize**.
  -or-
  Right-click on the graph that you want to change, then choose **Customize** from the shortcut menu.

The General tab of the Customization dialog box appears as shown in the figure below.

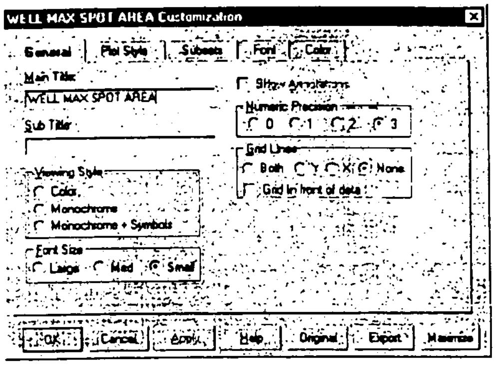

Figure 6.4 General tab of the Customization dialog box.

The options available to you in this dialog box are the same as those provided for customizing the graphs in the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window. For a comprehensive explanation of these options, see **Customizing the Graph** in Chapter 3, **Reviewing the Well Details of a Plate.**

Obtaining Graph Output

Printing a Graph

To print a graph,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

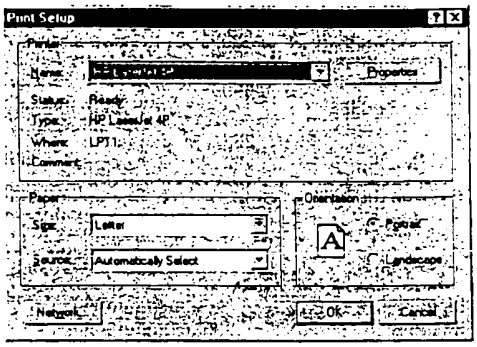

Figure 6.5 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) From the **Graph A**, **Graph B**, or **Graph C** menu, select **Print**.
-or-
Right-click on the graph that you want to print, then choose **Print** from the shortcut menu.

Copying a Graph to the Windows® Clipboard

An easy way to transfer a graph to another application is by copying it to the Windows® clipboard, then pasting it into your application.

To copy a graph to the Windows® clipboard,

- From the **Graph A**, **Graph B**, or **Graph C** menu, select **Copy**.
-or-
Right-click on the graph that you want to copy, then choose **Copy** from the shortcut menu.

Exporting a Graph

The Cell Detail Window allows you to export a graph either as a Windows® bitmap (.BMP) or a Windows® metafile (.WMF). After you do so, you may import this file into any application that supports these file types, such as Adobe® PhotoShop®. In addition to exporting the graph as an image, you can export the text and data only.

To export a graph,

1) From the **Graph A**, **Graph B**, or **Graph C** menu, select **Export**.
   -or-
   Right-click on the graph that you want to export, then choose **Export** from the shortcut menu.

The Exporting dialog box appears as shown in the figure below.

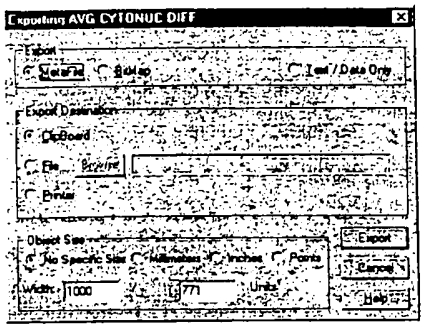

Figure 6.6 Exporting dialog box.

2) Choose the type of export that you want to do.
   You can save the graph either as a Windows® metafile (.WMF) or a Windows® bitmap (.BMP) by selecting either the **Metafile** or **Bitmap** option. If you want to export just the text and data, choose the **Text / Data Only** option.

3) Select the export destination.
   Depending on the type of export that you chose in the previous step, you may be able to export the graph to the Windows® clipboard, to a file, or to the printer by selecting the **Clipboard, File**, or **Bitmap** option. Unavailable options are grayed out.

4) If you choose the **File** option in Step 3, click the **Browse** button to show the Save As dialog box shown below. Then, enter a name and location for the file, and click the **OK** button. If you didn't choose the **File** option, skip this step.

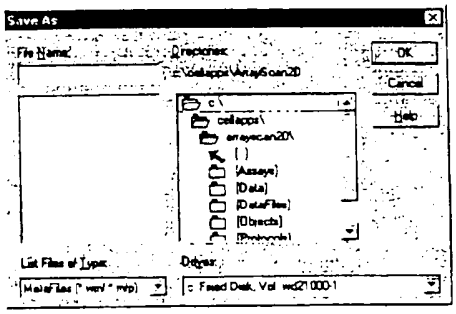

Figure 6.7 Save As dialog box.

5) Select the object size for the exported graph, and enter the dimensions in the **Width** and **Height** boxes.
The options available to you here depend on the type of export that you chose in Step 2 and the export destination that you chose in Step 3. The available options are summarized next.

Export Type	Export Destination	Available Object Size Options
Metafile	Clipboard	No specific size, millimeters, inches, and points
Metafile	File	No specific size, millimeters, inches, and points
Metafile	Printer	Full page, millimeters, inches, and points
Bitmap	Clipboard	Pixels
Bitmap	File	Pixels
Bitmaps	Printer	Not an available combination
Text / Data Only	Clipboard	None
Text / Data Only	File	None
Text / Data Only	Printer	Not an available combination

6) Click the **Export** button, or alternatively, the **Print** button if you chose a destination of "Printer".

7) If you chose an export destination of "Printer", select a printer, then click the **OK** button in the Printing dialog box that appears, as shown below.
If you need to change the printer settings, click the **Setup** button, then adjust the settings.

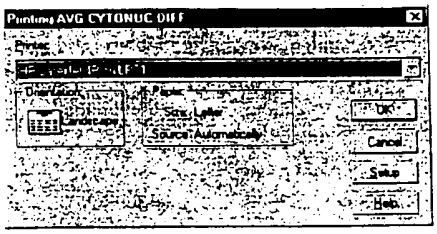

Figure 6.8 Printing dialog box.

Working with the Field Image Options

Modifying the Field Image Appearance

Changing the Properties of a Field Image

The Cell Detail Window allows you to change the display of the field images on your screen.

Note: Due to computer screen limitations, the display of the field images on your computer screen does not completely represent what the camera saw when acquiring the data. The field images shown are graphical representations.

To change the properties of a field image,

1) Right-click on the field image that you want to adjust, then choose **Properties** from the shortcut menu.

The Image Properties dialog box appears, displaying the [illegible]

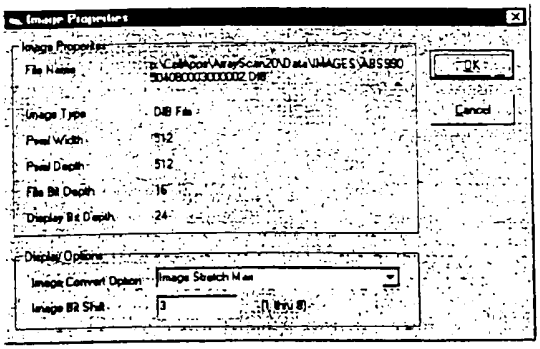

Figure 6.9 Image Properties dialog box.

2) Change the Display Options as you wish. Each option is explained briefly below.

Option	Description
Image Convert Option	Allows you to compensate for the differences between the image taken by the camera and the image displayed on your computer screen. While the camera can take an image using 16 bits, the computer screen can display 8 bits. **No Image Stretch** – Shows 8 bits of the 16-bit camera image. The bits shown depend on the number entered into the Image Bit Shift box. **Image Stretch Full** – Shows the 16-bit camera image compressed into 8 bits. **Image Stretch Max** – Shows the 16-bit camera image compressed into 8 bits from the maximum pixel brightness to the lower end.
Image Bit Shift	If you selected the No Image Stretch option above, entering a number in this box determines which 8 bits are shown. If you enter 1 in this box, you'll display bits 1 – 8. If you enter 2 in this box, you'll display bits 2 – 9. If you enter 3 in this box, you'll display bits 3 – 10 and so on.

3) Click the **OK** button to close the dialog box.
The images automatically change.

Numbering the Cells

The Cell Detail Window allows you to number the cells in the field image so that you can visually see which each one is.

To number the cells in the field images,

- Click the **Number Cells** toolbar button.
  -or-
  Right-click on a field image, then choose **Number Cells** from the shortcut menu.
  A checkmark is placed next to **Number Cells** to show that the option is turned on. The option that you chose applies to all of the field images.

- To remove the cell numbers, repeat the step above.
  The checkmark is now removed.

Showing the Color Overlays

In the Cell Detail Window, you can choose to display different color overlays on the field and cell images. The overlays that you can display depend on the assay used during the scan.

To show the color overlays,

1) If the color overlays are not shown in any of the field images, click the **Show Overlays** toolbar button.

-or-
Right-click on a field image, then choose **Color Overlay** from the shortcut menu.
The color overlay options that are set for each field image will be displayed in the field images.

2) To change the type of color overlays shown in each field image, right-click on the field image that you want to change, choose **Color Overlay** from the shortcut menu, then choose the color overlays that you want to display from the sub-menu.
A checkmark next to the option indicates that the option is turned on. To turn on an option that is turned off, select the option. To turn off an option that is turned on, select the option. The field and cell image will be updated automatically with your selection.

To turn off the color overlays,

- Click the **Show Overlays** toolbar button.
  -or-
  Right-click on a field image, then choose **Don't Show Overlay** from the shortcut menu.

Switching Between Normal and Large View

Normally each field image shown in the Cell Detail Window is displayed in normal view, which means that it is sized to fit within the designated field image area. To make a field image fill the entire window area, you can switch to large view.

To switch between normal and large view,

- Right-click on the field image that you want to display in large view, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.
- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Hiding and Unhiding a Field Image

As mentioned previously, the Cell Detail Window shows the grayscale field images for the selected spreadsheet row or graph data point, as taken with each channel in the assay. If you choose not to display a particular field image, you can hide it from view.

To hide and unhide a single field image,

- Right-click on the field image that you want to hide, then choose **Hide** from the shortcut menu.
- To unhide the field image, right-click on the cell image corresponding to the field image that you want to unhide, then choose **Show Full Image** from the shortcut menu.

To hide and unhide the field images that are shown,

- Click the **View Full Images** toolbar button.
  -or-
  Choose **Configure** on the **Window** menu, uncheck the Show Images option, then click the **OK** button.
- To unhide field images, click the **View Full Images** toolbar button.
  -or-

Choose **Configure** on the **Window** menu, check the Show Images option, then click the **OK** button.

Obtaining Field Image Output

Printing a Field Image

To print a field image,

1) Right-click on the field image that you want to print, then choose **Print** from the shortcut menu.

The Print dialog box appears as shown in the figure below.

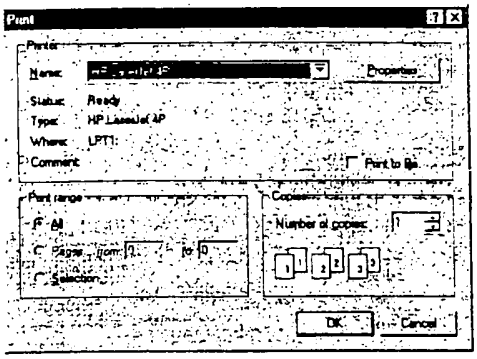

Figure 6.10 Print dialog box.

2) Select the printer that you want to print to in the **Name** box, and change any other print options, as desired

3) Click the **OK** button.

Copying a Field Image to the Windows® Clipboard

An easy way to transfer a field image to another application is by copying it to the Windows® clipboard, then pasting it into your application.

To copy a field image to the Windows® clipboard,

- Right-click on the field image that you want to copy, then choose **Copy** from the shortcut menu.

Exporting a Field Image

The Cell Detail Window allows you to export a field image in either Tagged Image Format (.TIF) or as a Windows® Bitmap (.BMP). After you do so, you may import this file into any application that supports these file types, , such as Adobe® PhotoShop®.

To export a field image,

1) Right-click on the field image that you want to export, then choose **Export** from the shortcut menu.

The Save File dialog box appears, as shown in the figure below.

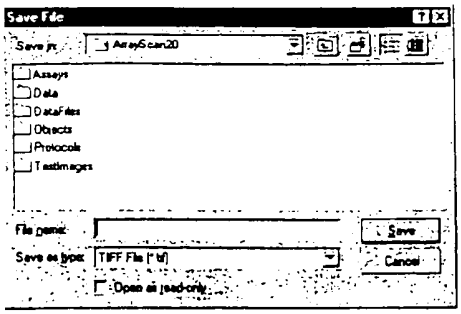

Figure 6.11 Save File dialog box.

2) Enter a name and location for the file, and change the type of file if necessary.

3) Click the **OK** button.

Working with the Spreadsheet Options

Modifying the Spreadsheet Appearance

Changing the Viewable Columns

The Cell Detail Window gives you complete control over the columns that you view in the spreadsheet.

To change the columns displayed,

1) From the **Spreadsheet** menu, select **Viewable Columns**.
   -or-
   Right-click on the spreadsheet, then choose **Viewable Columns** from the shortcut menu.

The Select Features to View dialog box appears as shown in the figure below. By default, all of the available features are checked.

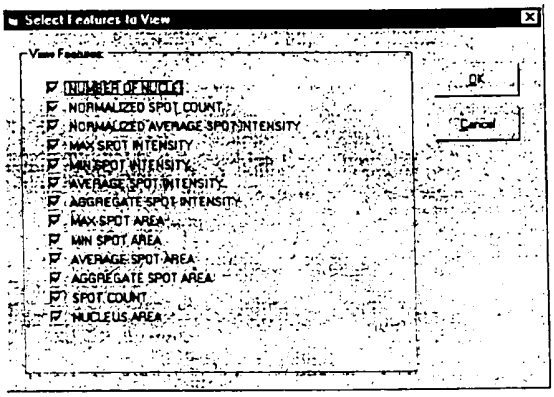

Figure 6.12 Select Features to View dialog box.

2) Choose the columns you want to display in the spreadsheet. To page through additional features use the **Next** and **Previous** buttons. The features that are checked will be displayed.

3) Click the **OK** button.

Adjusting the Number of Decimal Places

The Cell Detail Window allows you to specify the precision of the values shown in the spreadsheet.

To adjust the number of decimal places displayed,

1) From the **Spreadsheet** menu, select **Decimal Places**.
   -or-
   Right-click on the spreadsheet, then choose **Decimal Places** from the shortcut menu.

The Get Decimal Places dialog box appears as shown in the figure below.

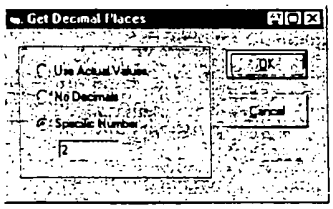

Figure 6.13 Get Decimal Places dialog box.

2) Select the option you want to use. A brief description of each option follows.

Option	Description
Use Actual Values	Shows the values in the available precision saved during the scan.
No Decimals	Shows the values as whole numbers or integers.
Specific Number	Shows the values to the number of decimal places that you enter in the box.

3) Click the **OK** button to close the Get Decimal Places dialog box.

Sorting the Spreadsheet Data

The data in the spreadsheet in the Cell Detail Window can be sorted in ascending or descending order using any of the columns.

To sort the spreadsheet data,

1) Click on the header for the column that you want to use to sort the data.

2) **To sort in ascending order:**
   Select **Sort Ascending** from the **Spreadsheet** menu.
   -or-
   Right-click on the spreadsheet, then choose **Sort Ascending** from the shortcut menu.

   To sort in descending order:
   Select **Sort Descending** from the **Spreadsheet** menu.
   -or-
   Right-click on the spreadsheet, then choose **Sort Descending** from the shortcut menu.

Switching Between Normal and Large View

Normally the spreadsheet shown in the Cell Detail Window is displayed in normal view, which means that it is sized to fit the designated spreadsheet area. To make the spreadsheet fill the entire window area, you can switch to large view.

To switch between normal and large view,

- From the **Spreadsheet** menu, select **Maximize**.
  -or-
  Right-click on the spreadsheet, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.

- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Hiding and Unhiding the Spreadsheet

If you would like to remove the spreadsheet from the view in the Cell Detail Window, you can do so.

To hide the spreadsheet,

- From the Spreadsheet menu, select **Hide**.
  -or-
  Right-click on the spreadsheet, then choose **Hide** from the shortcut menu.
  -or-
  Choose **Configure** on the **Window** menu, uncheck the Show Spreadsheet option, then click the **OK** button.
  A checkmark is placed next to **Hide** to show that the spreadsheet is hidden from view.

To unhide the spreadsheet,

- To unhide spreadsheet, from the Spreadsheet menu, select **Hide**.
  -or-
  Choose **Configure** on the **Window** menu, check the Show Spreadsheet option, then click the **OK** button.
  The checkmark next to **Hide** is now removed.

Highlighting the Current Cell

The Cell Detail Window provides you with the Color option, which allows you to use a color to highlight the current cell in the spreadsheet. When this option is turned on, the row in the spreadsheet, corresponding to the current cell, is highlighted in green. By default, this option is turned on.

To turn the Color option off,

- From the **Spreadsheet** menu, select **Color**.
  -or-
  Right-click on the spreadsheet, then choose **Color** from the shortcut menu.
  A checkmark is placed next to **Color** to indicate that this option is turned on.

- To turn this option on again, repeat the above procedure.
  The checkmark is now removed.

Obtaining Spreadsheet Output

Printing the Spreadsheet

To print the spreadsheet,

1) If you have not yet done so, select the printer that you want to print to by choosing **Select Printer** from the **File** menu.

The Print Setup dialog box appears as shown in the figure below.

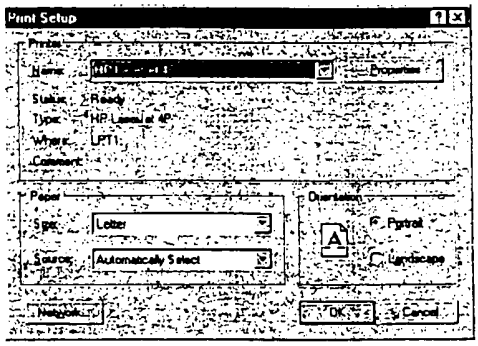

Figure 6.14 Print Setup dialog box.

2) In the **Name** box, select a printer, then click the **OK** button.

3) From the **Spreadsheet** menu, select **Print**.
-or-
Right-click on the spreadsheet, then choose **Print** from the shortcut menu.

Copying the Spreadsheet to the Windows® Clipboard

An easy way to transfer the values in the spreadsheet to another application is by copying them to the Windows® clipboard, then pasting them into your application. For instance, you can copy a spreadsheet and paste it into Microsoft® Word. When pasted into Word, the values in the spreadsheet are arranged in rows and columns that are separated by tabs. All of the data in all of the spreadsheet columns is copied, no matter which columns you are viewing.

To copy the spreadsheet to the Windows® clipboard,

- From the **Spreadsheet** menu, select **Copy**.
-or-
Right-click on the spreadsheet, then choose **Copy** from the shortcut menu.

Exporting the Spreadsheet

The Cell Detail Window allows you to export the values in the spreadsheet to a Comma Separated Value (.CSV) file. After you do so, you may import this file into any application that supports the .CSV file type, such as Microsoft® Excel. All of the data in all of the spreadsheet columns is exported, no matter which columns you are viewing.

To export the values in the spreadsheet,

1) From the **Spreadsheet** menu, select **Export**.
   -or-
   Right-click on the spreadsheet, then choose **Export** from the shortcut menu.

The Export Plate Data dialog box appears as shown in the figure below.

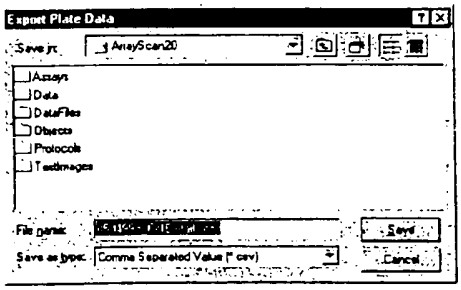

Figure 6.15 Export Plate Data dialog box.

2) From the available folder list, select the path to which you want to save the file.

3) Enter a name for the file in the **File Name** box.
   The .CSV file type is selected automatically.

4) Click the **Save** button.

Transferring the Spreadsheet to Excel

Instead of exporting the spreadsheet data to a .CSV file, then importing it into Microsoft® Excel, you can immediately transfer the values to an Excel worksheet. Using this option requires that you have Microsoft® Excel 97 installed on the computer.

To transfer the values in the spreadsheet immediately to Excel,

- From the **Spreadsheet** menu, select **Transfer to Excel**.
  -or-
  Right-click on the spreadsheet, then choose **Transfer to Excel** from the shortcut menu.
  A dialog box confirms that this is what you want to do. If you choose "Yes", the Excel application automatically opens and displays the values from the spreadsheet.

Working with the Cell Image Options

Modifying the Cell Image Appearance

Showing the Full Image

If the full field image corresponding to a cell image is not shown, you can show it using the

To show the full field image for a cell image,

- Right-click on the cell image for which you want to display the field image, then choose **Show Full Image** from the shortcut menu.
  A checkmark is placed next to **Show Full Image** to show that image is displayed.

Switching Between Normal and Large View

Normally each cell image shown in the Cell Detail Window is displayed in normal view, which means that it is sized to fit within the designated cell image area. To make a cell image fill the entire window area, you can switch to large view.

To switch between normal and large view,

- Right-click on the cell image that you want to display in large view, then choose **Maximize** from the shortcut menu.
  A checkmark is placed next to **Maximize** to show that you are in large view.
- To switch back to normal view, repeat the above procedure.
  The checkmark is now removed.

Hiding and Unhiding a Cell image

As mentioned previously, the Cell Detail Window shows the grayscale cell images for the selected spreadsheet row or graph data point, as taken with each channel in the assay. If you choose not to display a particular cell image, you can hide it from view.

To hide and unhide a single cell image,

- To hide a cell image, right-click on the cell image that you want to hide, then choose **Hide** from the shortcut menu.
- To unhide the cell image, Choose **Configure** on the **Window** menu, check the Show Cell Images option, then click the **OK** button.

To hide and unhide the cell images that are shown,

- To hide cell images, choose **Configure** on the **Window** menu, uncheck the Show Cell Images option, then click the **OK** button.
- To unhide cell images, choose **Configure** on the **Window** menu, check the Show Cell Images option, then click the **OK** button.

Obtaining Cell Image Output

Printing a Cell Image

To print a cell image,

1) Right-click on the cell image that you want to print, then choose **Print** from the shortcut menu.

The Print dialog box appears as shown in the figure below.

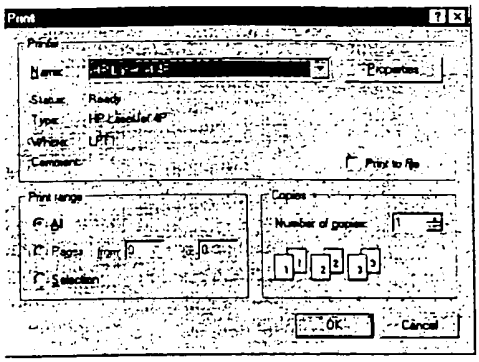

Figure 6.16 Print dialog box.

2) Select the printer that you want to print to in the **Name** box, and change any other print options as desired.

3) Click the **OK** button.

Copying a Cell Image to the Windows® Clipboard

An easy way to transfer a cell image to another application is by copying it to the Windows® clipboard, then pasting it into your application.

To copy a cell image to the Windows® clipboard,

- Right-click on the cell image that you want to copy, then choose **Copy** from the shortcut menu.

Exporting a Cell Image

The Cell Detail Window allows you to export a cell image in either Tagged Image Format (.TIF) or as a Windows® Bitmap (.BMP). After you do so, you may import this file into any application that supports these file types, such as Adobe® PhotoShop®.

To export a cell image,

1) Right-click on the cell image that you want to export, then choose **Export** from the shortcut menu.

The Save File dialog box appears, as shown in the figure below.

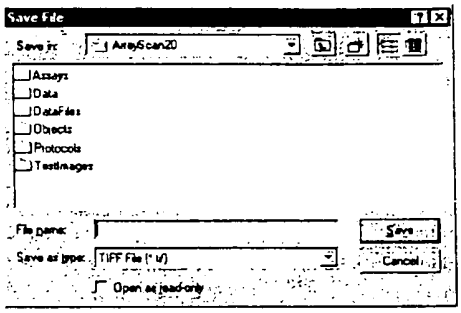

Figure 6.17 Save File dialog box.

2) Enter a name and location for the file, and change the type of file if necessary.

3) Click the **OK** button.

FREQUENTLY ASKED QUESTIONS

What does the Cell Detail Window show me?
The Cell Detail Window allows you to display the data and images collected during the scan on a cell level. It shows you the values as measured for each cell, which are combined into the well results in the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window.

How do I open the Cell Detail Window?
The Cell Detail Window can be opened from three other Cellomics™ Data Viewer windows: the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window. On the most basic level, you can view the cell details of an individual well. Select the well, then right click on your selection and choose **Cell Details**. You can also view the cell details of a group of wells, whole row of wells, or whole column of wells. These options are discussed in the **Viewing More Detailed Data** sections in Chapters 3, 4, and 5.

Can I display the cell images for more than one cell at a time?
Not in one window. In one Cell Detail Window, you can display the cell images for one cell at a time. If you would like display the cell images for more than one cell, you can open multiple instances of the Cell Detail Window, then tile the windows.

Chapter 7

Viewing the Field Details

The Cellomics™ Data Viewer allows you drill down when you are reviewing the summarized results of the wells to display the field details. This type of analysis is done using the Field Detail Window. The Field Detail Window is very similar to the Cell Detail Window discussed in Chapter 6.

This chapter explains the extensive options built into the Field Detail Window of the Cellomics™ Data Viewer.

Note: Not all assays record field level details. If the assay used to collect the data does not provide this level of detail, the spreadsheet in the Field Detail Window will show two columns: one for the well number and one for the field number. You can use the listing in the spreadsheet to browse through the field images.

Opening the Field Detail Window

The Field Detail Window is shown in the figure below.

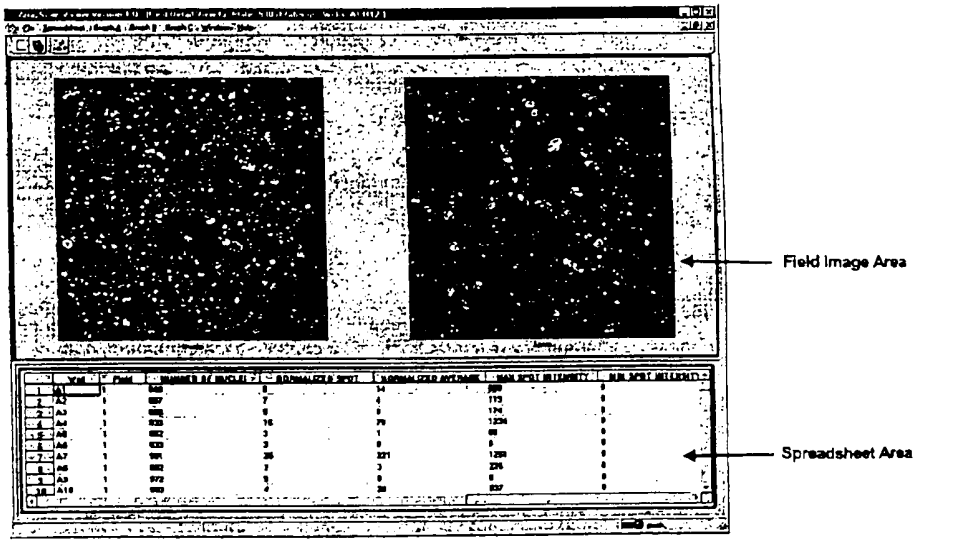

Figure 7.1 Each section of the Field Detail Window is labeled in this figure. This window allows you to review the data collected on a field level.

The Field Detail Window can be opened from several of the other windows in the Cellomics™ Data Viewer, including the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window. For instructions on opening the Field Detail Window from these windows, refer to the following sections in this manual.

From Window	Chapter and Section	Page Number
Well Detail	Chapter 3, Viewing the Field Details	56
Multi-Feature	Chapter 4, Viewing the Field Details	82
Multi-Plate	Chapter 5, Viewing the Field Details	93

Field Detail Window Sections

A brief description of each section of the Field Detail Window follows.

Section	Description
Field Image Area	Shows the grayscale field images for the selected field, as taken with each channel in the assay. The field images provide you with many display and output options, see **Working with the Field Image Options** later in this chapter.
Spreadsheet Area	Shows the actual measured values. If the assay doesn't measure field details, the well and field numbers will be shown here. The spreadsheet gives you many display and output options, see **Working with the Spreadsheet Options** later in this chapter.
Graph Area	Shows a maximum of three graphs visually displaying the relationships in the data. This area is not displayed as a default but can be shown by configuring the window. For more information, see **Configuring the Field Detail Window** and **Working with the Graph Options** later in this chapter.

These sections work together to help you review the data on field level, as follows:

- Clicking on a row in the spreadsheet displays the field images as taken with each channel in the field image area.

Field Detail Window Toolbar

The toolbar located across the top of the Field Detail Window contain three buttons, each of which is explained below.

Image	Toolbar Button Name	What it Does
	View Graphs	Toggles whether the graphs are shown in this window.
	View Full Images	Toggles whether the field images are shown in this window.
	Show Overlays	Toggles whether the color overlays are shown on the field images in this window.

Configuring the Field Detail Window

The Field Detail Window can show you three types of information: graphs of the field data, field images as taken during the scan, and the actual measured values in the spreadsheet. You may not want to display all of this information in all cases. For this reason, the Field Detail Window allows you to configure what is shown.

To configure the Field Detail Window,

1) From the **Window** menu, select **Configure**.

The Configure Cell Detail Objects dialog box appears as shown in the figure below.

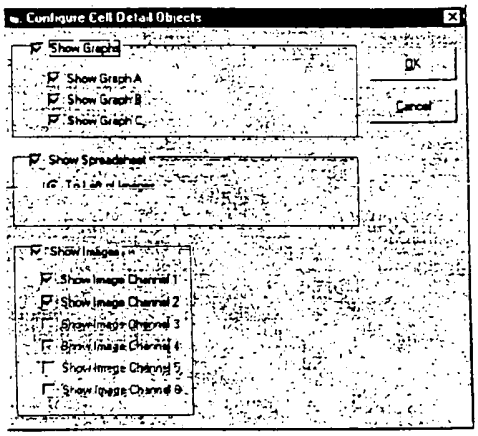

Figure 7.2 Configure Cell Detail Objects dialog box.

2) Select the options for the items that you want to view in the window.

3) Click the **OK** button to close the dialog box.

Working with the Field Image Options

The field image options available to you in the Field Detail Window are the same as the options available to you in the Cell Detail Window.

For detailed information on these options, refer to **Working with the Field Image Options** in Chapter 6, **Viewing the Cell Details**. The available options and the page number references are listed below.

Option	Chapter 6 Page Number
Changing the Properties of a Field Image	107
Showing the Color Overlays	108
Switching Between Normal and Large View	109
Hiding and Unhiding a Field Image	109
Printing a Field Image	110
Copying a Field Image to the Windows® Clipboard	110
Exporting a Field Image	110

Working with the Spreadsheet Options

The spreadsheet options available to you in the Field Detail Window are the same as the options available to you in the Cell Detail Window.

For detailed information on these options, refer to **Working with the Spreadsheet Options** in Chapter 6, **Viewing the Cell Details**. The available options and the page number references are listed below.

Option	Chapter 6 Page Number
Changing the Viewable Columns	111
Adjusting the Number of Decimal Places	113
Sorting the Spreadsheet Data	113
Switching Between Normal and Large View	114
Hiding and Unhiding the Spreadsheet	114
Highlighting the Current Cell	114
Printing the Spreadsheet	115
Copying the Spreadsheet to the Windows® Clipboard	115
Exporting the Spreadsheet	116
Transferring the Spreadsheet to Excel	116

Working with the Graph Options

The graph options available to you in the Field Detail Window are the same as the options available to you in the Cell Detail Window.

For detailed information on these options, refer to **Working with the Graph Options** in Chapter 6, **Viewing the Cell Details**. The available options and the page number references are listed below.

Option	Chapter 6 Page Number
Zooming in on a Portion of the Graph	100
Creating a New Graph	100
Changing the Plotting Method	101
Showing and Hiding Grid Lines	101
Changing the Data Point Size	102
Moving the Grid from the Back to the Front	102
Marking the Data Points	102
Switching Between Normal and Large View	103
Hiding and Unhiding a Graph	103
Customizing a Graph	103
Printing a Graph	105
Copying a Graph to the Windows® Clipboard	105
Exporting a Graph	106

FREQUENTLY ASKED QUESTIONS

What does the Field Detail Window show me?
The Field Detail Window allows you to display the images collected during the scan on a field level.

How do I open the Field Detail Window?
The Field Detail Window can be opened from three other Cellomics™ Data Viewer windows: the Well Detail Window, the Multi-Feature Window, and the Multi-Plate Window. On a basic level, you can view the field details of an individual well. Select the well, then right click on your selection and choose **Field Details**. You can also view the field details of a group of wells, whole row of wells, or whole column of wells. These options are discussed in the **Viewing More Detailed Data** section in Chapters 3, 4, and 5.

Can I display the field images for more than one field at a time?
Not in one window. In one Field Detail Window, you can display the field images for one field at a time. If you would like display the field images for more than one field, you can open multiple instances of the Field Detail Window, then tile the windows.

Chapter 8

Working with the User Options

The Cellomics™ Data Viewer allows you to set certain user options. These options include:

- Your user password,
- Whether to use user or system defaults, and
- When to update user defaults if you chose to use them.

Each of these user options is explained in this chapter.

Changing the User Password

Users of the Cellomics™ Data Viewer have their own passwords, which can be changed as necessary.

To change your user password,

1) From the **File** menu in any window, select **User Options**.
   -or-
   Right-click on the plate list in Viewer Main Window, then choose **User Options** from the shortcut menu.

The User Options dialog box appears as shown in the figure below.

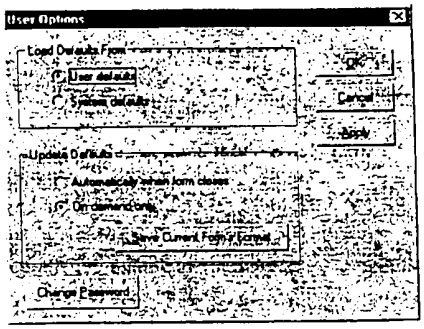

Figure 8.1 User Options dialog box.

2) Click the **Change Password** button.

The Change Password dialog box, shown in the figure below, appears.

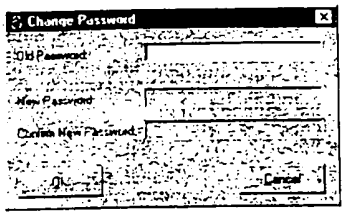

Figure 8.2 Change Password dialog box.

3) Enter your old password in the **Old Password** box.

4) Enter your new password twice, once in the **New Password** and once in the **Confirm New Password** box.

5) Click the **OK** button.
Your new password takes effect the next time that you log on to the Cellomics™ Data Viewer.

Using the User Options

While the Cellomics™ Data Viewer has initial default options for displaying the data in each window, it allows users to save their own individual settings for use during later sessions.

The items that can be saved as user options include many of the appearance options discussed in previous chapters of this manual. User options are saved locally on the computer. As long as you use the same computer during your next review session, your user options will be loaded automatically.

To use user options,

1) From the **File** menu in any window, select **User Options**.
-or-
Right-click on the plate list in Viewer Main Window, then choose **User Options** from the shortcut menu.

The User Options dialog box appears as shown in the figure below.

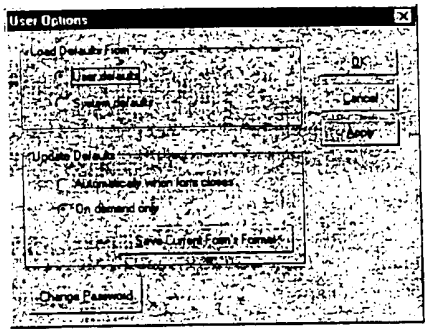

Figure 8.3 User Options dialog box.

2) Select the User Defaults

3) Select how you want to update your user defaults. Each option is explained below.

Option	Description
Automatically when form closes	Saves the final display options automatically as user defaults when you close a window.
On demand only	Saves the display options for a window when you return to the User Options dialog and click the **Save Current Form's Format** button.

4) Click the **OK** button to close the User Options dialog box.
When you open a window or view, your user options will be loaded automatically.

To save the display options for a window if you chose to save them on demand only,

1) Open the window for which you want to save the options.
2) Set up the display with your preferences.
3) From the **File** menu in the window, select **User Options**.

   The User Options dialog box appears.
4) Click the **Save Current Form's Format** button.
5) Click the **OK** button.

To return to using the system defaults,

1) From the **File** menu in any window, select **User Options**.
   -or-
   Right-click on the plate list in Viewer Main Window, then choose **User Options** from the shortcut menu.

   The User Options dialog box appears.
2) Select the **System Defaults** option.
3) Click the **OK** button to close the User Options dialog box.

Chapter 9

Managing Plates

The Cellomics™ Data Viewer provides you with the functionality for managing plates. You can:

- Import a plate,
- Export a plate,
- Delete a plate, and
- Save additional information with a plate.

Each of these items is discussed in this chapter.

Importing a Plate

To import a plate,

1) From the **File** menu in the Viewer Main Window, select **Import**.
   -or-
   Right-click on the plate list, then choose **Import** from the shortcut menu.

The Import Plate Data dialog box appears as shown in the figure below.

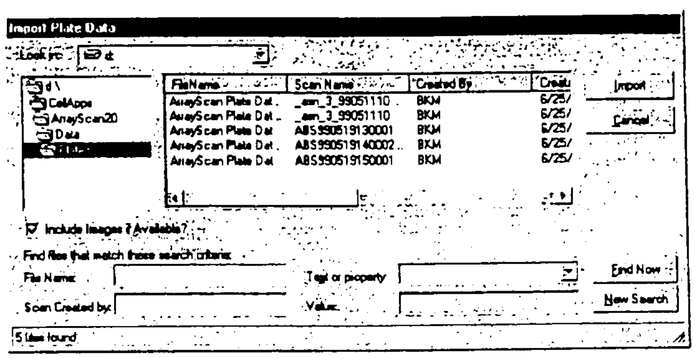

Figure 9.1 Import Plate Data dialog box.

2) Locate the plate that you want to import.
If you need help finding the plate, enter your search criteria in the bottom of the dialog box, then click the **Find Now** button. To clear the criteria and start a new search, click the **New Search** button.

3) Check the checkbox if you want to include images for the plate if they are available.

4) Click the **Import** button.
A dialog box confirms that you want to start the import. If the plate already exists in the system, a dialog box tells you that the import cannot begin.

Exporting a Plate

The data collected for a plate is stored in a Microsoft® Access database. If you wish, you can export the plate. You may want to do this to send a plate to Cellomics™ for analysis, for training purposes, or to archive the plate.

To export a plate,

1) From the plate list in the Viewer Main Window, select the plate(s) that you want to export.

To select a group of continuous plates: Click on the first plate that you want to select. While holding down the Shift key, click on the last plate that you want to select. Release the Shift key. All of the plates in between these two plates will be selected.
To select a group of non-continuous plates: Click on one of the plates that you want to select. While holding down the Ctrl key, click on all of the other plates that you want to select. Release the Ctrl key. The plates that you clicked on will be selected.

2) From the **File** menu, select **Export**.
-or-
Right-click on your selection, then choose **Export** from the shortcut menu.

The Export Plates dialog box appears as shown in the figure below.

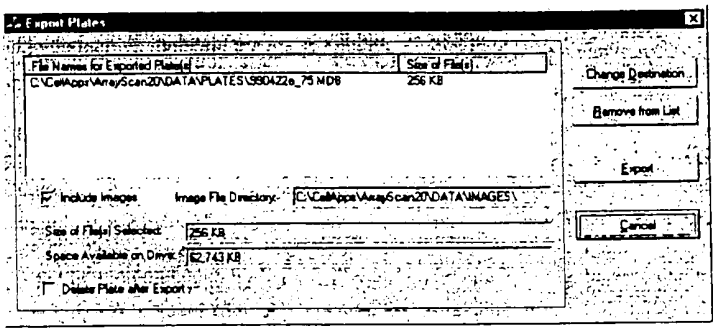

Figure 9.2 Export Plates dialog box.

3) Choose any or all of the following options:

To change the export destination: Click the **Change Destination** button. In the Select Destination dialog box shown below, select the path to which you want to save the file, then click the **Save** button.

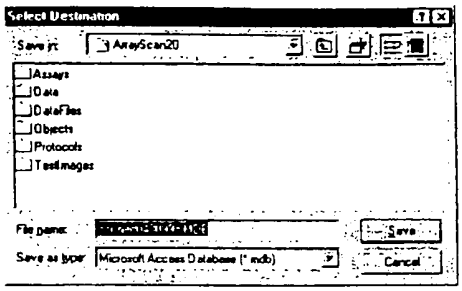

Figure 9.3 Select Destination dialog box.

To remove a plate from the list of plates to be exported: Click on the plate that you want to remove, then click the **Remove from List** button.

To include images in the export: Select the **Include Images** checkbox.

To delete a plate after it is exported: Select the **Delete Plate After Export** checkbox.

4) Click the **Export** button.
Dialog boxes confirm that you want to export the plate and, if you selected to export the images, that you want to create an image directory.

Deleting a Plate

To delete a plate,

1) From the plate list in the Viewer Main Window, select the plate that you want to delete.

2) From the **File** menu, select **Delete**.
-or-
Right-click on your selection, then choose **Delete** from the shortcut menu.
A dialog box confirms that you want to delete the plate.

Changing the Plate Name

The Cellomics™ Data Viewer allows you to change the name of a plate. Changing the name of the plate modifies the plate record.

To change the name of a plate,

1) In the Viewer Main Window, click on the plate whose name you want to change.

2) From the **Edit** menu, select **Change Name**.

The Change Plate Name dialog box appears as shown below.

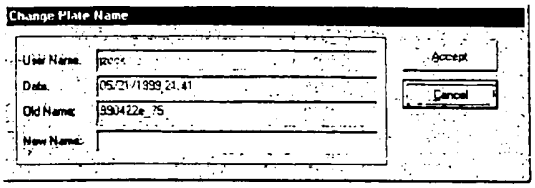

Figure 9.4 Change Plate Name dialog box.

3) Enter the new name for the plate in the New Name box.

4) Click the **Accept** button.
The name is changed in the plate record, entered in the Name box in the Viewer Main Window, and noted in the Comments box in the Viewer Main Window.

Changing the Plate Status

The Cellomics™ Data Viewer allows you to change the status of a plate. Changing the status of the plate modifies the plate record.

To change the plate status,

1) In the Viewer Main Window, click on the plate whose status you want to change.

2) From the **Edit** menu, select **Change Status**.

The Change Plate Status dialog box appears as shown below.

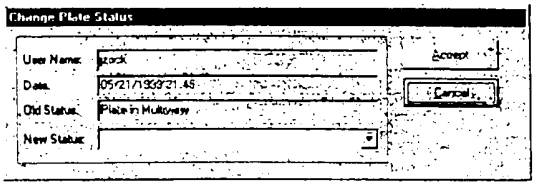

Figure 9.5 Change Plate Status dialog box.

3) Choose a status from the New Status list.

4) Click the **Accept** button.
The status is changed in the plate record, entered in the Status box in the Viewer Main Window, and noted in the Comments box in the Viewer Main window.

Adding Plate Comments

The Cellomics™ Data Viewer allows you to add plate comments to a plate record. Comments that are already in the Comments box of the Viewer Main Window may not be changed.

To add plate comments,

1) In the Viewer Main Window, click on the plate to which you want to add comments.

2) From the **Edit** menu, select **Add Comments**.

The Add Plate Comments dialog box appears as shown below.

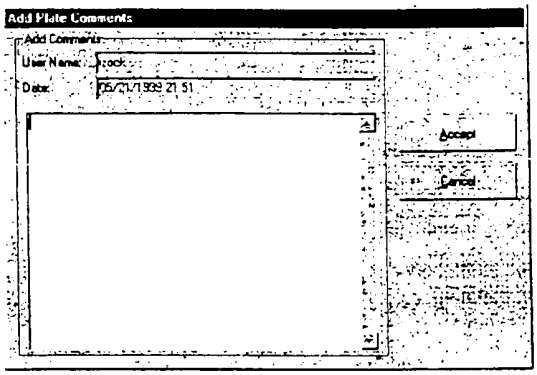

Figure 9.6 Add Plate Comments dialog box.

3) Type in your comments.

4) Click the **Accept** button.
The comments are entered in the Comment box of the Viewer Main Window.

Using Plate Attachments

If you chose to run an "End of Scan Report" from within ArrayScan™, these reports will be listed in the Attachments section of the Viewer Main Window. The Cellomics™ Data Viewer allows you to add additional attachments, open attachments, and delete attachments from the plate record.

Adding a Plate Attachment

Using the Cellomics™ Data Viewer's Add Attachment functionality, you can attach external documents to a plate record, including Word documents (.DOC), Excel spreadsheets (.XLS), or Comma-Separated-Value files (.CSV).

To add a plate attachment,

1) In the Viewer Main Window, click on the plate to which you want to add the attachment.

2) From the **Edit** menu, select **Attachments**, then choose **Add Attachment** from the sub-menu.

The Attach Document dialog box appears as shown below.

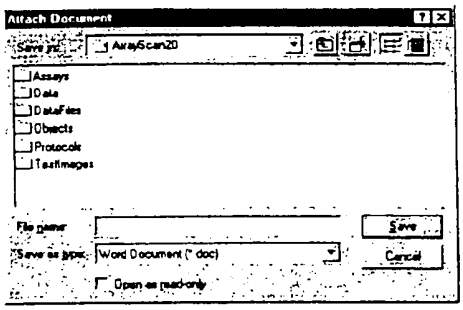

Figure 9.7 Attach Document dialog box.

3) Choose the type of attachment that you are adding from the Save as Type list.

4) Locate the document that you want to attach.

5) Click the **Save** button.
A dialog box confirms that you want to attach the document. If you answer affirmatively, the File Description dialog box appears.

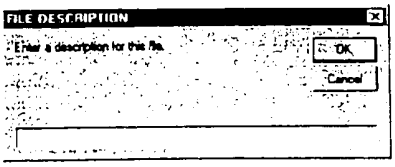

Figure 9.8 File Description dialog box.

6) Enter a description of the file.

7) Click the **OK** button.
The attachment information is recorded in the Attachments box of the Viewer Main Window.

Opening a Plate Attachment

The Cellomics™ Data Viewer allows you to open plate attachments from inside the application.

To open a plate attachment,

1) In the Viewer Main Window, click on the plate that has the attachment that you want to display.
   The plate details appear on the right side of the window.

2) In the Attachments box in the Viewer Main window, click on the attachment that you want to open.

3) From the **Edit** menu, select **Attachments**, then choose **Open Attachment** from the sub-menu.
   The Microsoft® Word or Excel application open and displays the contents of the attachment.

Deleting a Plate Attachment

To delete a plate attachment,

1) In the Viewer Main Window, click on the plate that contains the attachment that you want to delete.
   The plate details appear on the right side of the window.

2) In the Attachments box in the Viewer Main window, click on the attachment that you want to delete.

3) From the **Edit** menu, select **Attachments**, then choose **Delete Attachment** from the sub-menu.
   A dialog box confirms that you want to delete the attachment from the plate record.

Chapter
10

Generating Reports

Generating Reports

The Cellomics™ Data Viewer allows you to generate reports, then print or preview the reports.

To choose a report to generate,

1) From the Viewer Main window, click the **Open Reports** button.
   The Microsoft® Access program opens and displays the Multiview Reports dialog box as shown below.

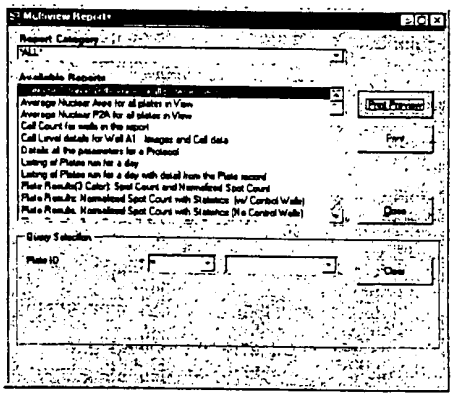

Figure 10.1 Multiview Reports dialog box.

2) Select a Report Category from the Report Category drop-down list.

3) Select a report from the Available Reports list.

4) Under Query Selection, enter the data for the report.

5) To preview the report, click the **Print Preview** button.

6) To print the report, click the **Print** button.

7) To close Microsoft® Access without creating a report, click the **Close** button.

Appendix
A

Working with the Watchdog Utility

The Cellomics™ Data Viewer's Watchdog utility monitors the computer and performs automated tasks. This utility is installed on every ArrayScan™ II machine that is connected to the Cellomics™ Store, including canned-scan machines. Its purpose is to monitor the system for completed scans, move the scan data to the server, then erase that data from the Arrayscan™ II. This way, Arrayscan™ II can generate data and store it locally, never having to stop to move that data over to the server until the scan is completed.

Note: Except for use in debugging, you typically will not need to change the settings in the Watchdog utility.

Starting the Watchdog Utility

The Watchdog should be set so that it starts automatically when the computer starts. If the Watchdog utility does not start automatically, you may need to start it manually.

To start the Watchdog utility,

- From the **Windows® Start** menu, select **Programs**. Choose the **CellApps** folder, then the **ArrayScan 2.0** folder, then **Watchdog**.

The Watchdog icon appears in the Windows® taskbar.

Opening the Watchdog Utility

As mentioned previously, you will not need to work the Watchdog utility in most cases. The information in this section is provided in case you are advised to work with the Watchdog settings.

To open the Watchdog utility,

- Click on the Watchdog icon on the Windows® taskbar.

The Watchdog dialog box opens.

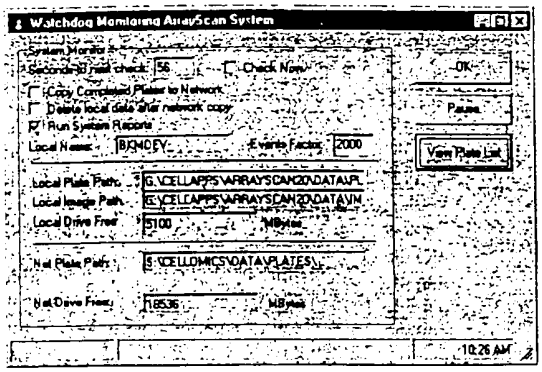

Figure A.1 Watchdog dialog box.

Watchdog Options

The Watchdog options are explained briefly below.

Section	Description
System Monitor Configuration Options	There are three configuration options for Watchdog: Copy Completed Plates to Network, Delete Local Data After Network Copy, and Run System Reports. Except for when debugging problems, these options should be checked. If you start Watchdog without having these options checked, a setting needs to be changed in your cellomic.ini file. Contact technical support for information.
	Watchdog checks the clock every second to determine if a minute has elapsed. If it has, Watchdog performs a check on the system to see if any scans have been completed. If any have, Watchdog performs the configuration options that are checked.
Events Factor	Allows you to change the Events Factor from the default. The greater the number for the Events Factor, the slower Watchdog operates, and the less computer resources it uses. This value should never need to be changed, as long as Watchdog is not interfering with the speed of scanning plates.
Check Now	Forces Watchdog to perform its automated tasks, instead of waiting for the once a minute check. This option is useful for debugging.
View Plate List Button	Shows the directory of plates that Watchdog is monitoring. This is useful for debugging.
Pause Button	Stops Watchdog from performing its automated tasks. This is useful for debugging.

Exiting the Watchdog Utility

The Watchdog utility needs to be exited before you can shut off your computer.

To exit the Watchdog utility,

- Right-click on the Watchdog icon on the Windows® taskbar, then select Exit from the shortcut menu.

Appendix

B

Working with the Database Configurator

The Cellomics™ Data Viewer's Database Configurator is a utility used to configure the database parameters used for the Arrayscan™ II and Cellomics™ Data Viewer applications in the cellomic.ini file and the app.mdb database.

Configuring the database parameters is necessary because Arrayscan™ II and the Cellomics™ Data Viewer applications either can work with a local database or be connected to a client/server database, such as SQL server or Oracle. The Database Configurator allows the applications to work with any database configuration.

Note: In general, you will use this utility when installing the applications to a non-default setting such as to a different drive, when Arrayscan is connected to a server, or in other specialty situations.

Starting the Database Configurator

To start the Database Configurator,

- From the **Windows® Start** menu, select **Programs**. Choose the **CellApps** folder, then the **ArrayScan 2.0** folder, then **Database Configurator**.

The Database Configurator dialog box appears as shown below.

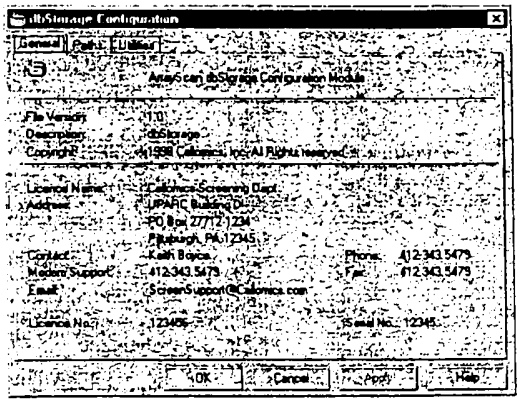

Figure B.1 Database Configurator dialog box.

Database Configurator Tabs

Each tab in the Database Configurator dialog box is explained briefly in this section.

General Tab

The General tab, shown previously, provides general information about the installation. The information on this tab comes from the database. If no information is shown here, it is likely that the system is not connected to the database and configuration is needed. See the Paths tab for more details. The information on this screen is saved in the database when the software is registered.

Paths Tab

The Paths tab is shown in the figure below.

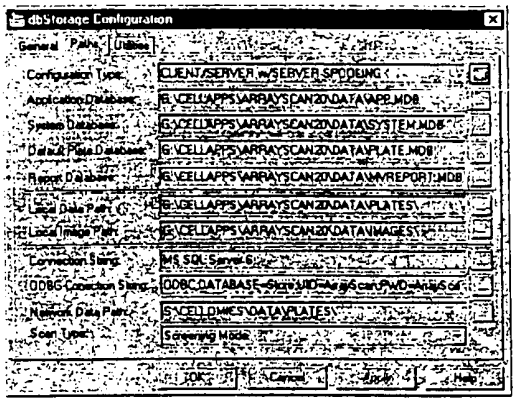

Figure B.2 The Paths tab of the Database Configurator dialog box.

This tab displays the current settings in the cellomic.ini file. If necessary, these settings can be changed.

To change a setting,

1) Click on the button to the right of the setting.
   Different dialog boxes appear, depending on the item that you are changing.
2) Make your changes in the dialog box that appears.
3) Click the **OK** button to close the dialog box.
4) Repeat Steps 1 to 3 above to change any other settings.

Utilities Tab

The Utilities tab is shown in the figure below.

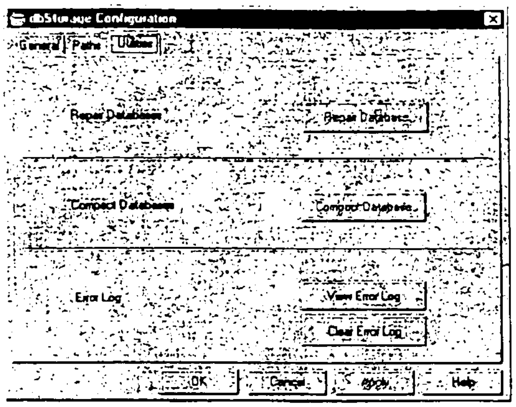

Figure B.3 The Utilities tab in the Database Configurator dialog box.

This tab provides access to common database utilities.

Note: These options should be used with assistance from a Cellomics™ Technical Support Representative.

For stand-alone versions, these options allow you to repair and/or compact the databases used by Arrayscan™ II. For more information on their functions, refer to the help for Microsoft® Access on "Repair and Compacting Databases". In client/server configurations, the first two options are disabled. Refer to the database administrator's guide for help with diagnosing and repairing server database problems.

The Error Log records errors encountered by the ArrayScan™ II and Cellomics™ Data Viewer. To view the error log, click the **View Error Log** button. To clear error log, click the **Clear Error Log** button.

Exiting the Database Configurator

To exit the Database Configurator,

- Press the **OK** button in the Database Configurator dialog box.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(Attorney's Docket No. 98,675-C)

Applicant or Patentee: Terry Dunlay and Keith Boyce

Serial or Patent No. **To be assigned** Filed: **Herewith**

Title: Data Management and Presentation Methods

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 C.F.R. § 1.9(f) AND § 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: **Cellomics, Inc.**

ADDRESS OF CONCERN: **635 William Pitt Way**
Pittsburgh, Pennsylvania 15238

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 C.F.R. § 121.12, and reproduced in 37 C.F.R. § 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time, or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled **Data Management**

and Presentation Methods
by inventor(s) Terry Dunlay and Keith Boyce

described in

☒ the specification filed herewith.
☐ Application Serial No. filed
☐ Patent No. _____, issued _____.

If the rights held by the above identified small business concern are not exclusive, each individual concern or organization having rights in the invention must file verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR § 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR § 1.9(d), or a nonprofit organization under 37 CFR § 1.9(e).

Each person, concern or organization having any rights to the invention is listed below:

☒ No such person, concern or organization exists.
☐ Each such person, concern or organization is listed below.

FULL NAME _____

ADDRESS _____

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Separate verified statements are required from each named person, concern or organization having rights in the invention averring to their status as small entities. (37 CFR § 1.27).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. § 1.28(b))

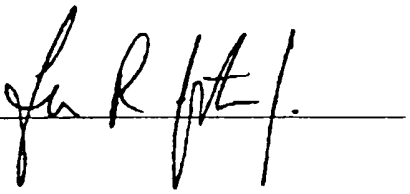
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing therein, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: Lee R. Johnston, Jr.

TITLE IN ORGANIZATION: VP & Chief Financial Officer

ADDRESS OF PERSON SIGNING: 635 William Pitt Way

Pittsburgh, PA 15238

Signature: 

Date: 6/16/99